NXT Span Charts

Design Criteria for Span Tables:

Values in the maximum allowable rail span tables provided herein are subject to the following general criteria and additional criteria shown on individual span tables sheets. Values in span tables are based on the same engineering methodology and calculation algorithms used for U-Builder and are provided here for reference.

Building Assumptions

- Building Risk Category: II
- Mean Roof Height: 30ft
- Roof Pitch: 0°-45°
- Site Elevation: 0 ft

Wind Design Assumptions

- Exposure Category B, C, or D
- Basic Wind Speed = 90 – 180 mph
- Level terrain. Topographic factor, kzt = 1.0
- γE = 1.0 for 'Interior' spans, γ_E = 1.5 for 'Exposed' spans (ASCE 7-22 Sec. 29.4.3, Fig. 29.4-7)

Snow Design Assumptions

- Ground Snow Load = 0-100 psf
- Exposure Factor coefficients of Partially Exposed condition
- Thermal Factor = 1.2
- Results based on uniform snow load

Seismic Design Assumptions

- 0.2-s Spectral Response Acceleration
- S_s = 1.25 and 3 with S_{Ds} = 1, 2.4 respectively per criteria shown on individual span tables sheets.
- S_1 = 0.5, S_{D1} = 0.6
- Seismic site class D

Array Assumptions

- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1" x 67" (18.66 sq.ft, 47.65 lbs) and 41" x 80" (22.78 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at least twice the module height above roof surface.
- Modules are parallel to roof surface and maximum height above roof surface is 5" to 10" depending on attachment type.
- Gaps between module rows and columns is 0.5".
- 'Exposed' spans as defined in ASCE 7-22 sec. 29.4.4 shall be used when any part of an exposed module or panel as is attributed to that span.
- The most restrictive of all roof zone spans shall be used when any part of the module is attributed to that span.

Design Tool Version

- Flush_Design Tool_240118.xlsm

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

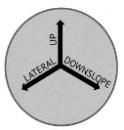
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

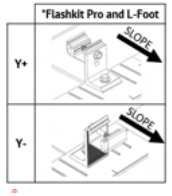
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	86	86	76	86	83	73	86	79	70	86	76	67	83	73	65	80	71	63	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	86	86	86	86	86	84	86	86	81	86	86	77	86	84	74	86	81	71	86	78	69	83	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	86	84	74	86	80	71	86	76	68	84	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	84	77	87	81	75	87	75	70	86	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	86	79	87	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	87	87	85	87	87	81	87	85	78	87	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	85	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	66	82	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	82	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	87	87	82	87	85	78	87	81	75	87	78	72	87	75	69	87	72	67	84	69	64	79	65	60	74	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	87	74	69	87	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	77	86	80	74	83	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	86	80	73	82	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	86	82	73	86	79	69	86	75	67	82	73	64	79	70	62	76	67	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	79	70	62	76	67	59	72	64	57	70	62	55	67	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	86	79	70	86	76	67	83	72	64	79	70	62	76	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	76	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	87	82	76	87	78	73	87	75	70	87	72	67	84	69	64	81	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	84	69	64	80	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	87	87	81	87	84	77	86	81	74	83	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
10	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	81	81	76	81	81	73	81	79	70	81	76	67	81	73	65	80	71	63	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	71	81	78	69	81	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	81	81	74	81	80	71	81	76	68	81	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	84	84	77	84	81	75	84	75	70	84	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	79	86	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	86	86	85	86	86	81	86	85	78	86	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	81	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	81	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	66	81	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	81	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	84	84	82	84	84	78	84	81	75	84	78	72	84	75	69	84	72	67	84	69	64	79	65	60	74	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	84	74	69	84	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	86	86	86	86	86	83	86	86	80	86	83	77	86	80	74	83	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	86	80	73	82	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	81	81	73	81	79	69	81	75	67	81	73	64	79	70	62	76	67	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	79	70	62	76	67	59	72	64	57	70	62	55	67	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	81	79	70	81	76	67	81	78	69	81	75	66	81	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	76	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	85	82	76	85	78	73	85	75	70	85	72	67	84	69	64	81	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	84	69	64	80	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	87	87	81	87	84	77	86	81	74	83	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	63	73	67	59	72	64	56	69	61	54	66	58	51
			Exposed	73	73	73	73	73	73	73	73	70	73	73	67	73	73	65	73	71	63	73	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	73	73	64	73	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	73	73	73	73	73	71	73	73	68	73	73	65	73	70	62	73	68	60	73	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	75	78	75	70	78	71	65	78	67	62	77	63	59	73	60	56	70	57	53
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	65	78	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	81	81	81	81	81	81	81	81	78	81	81	75	81	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	70	62	73	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	73	73	66	73	72	63	73	69	61	73	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	69	62	73	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	73	72	64	73	69	61	73	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	67	78	69	64	78	65	60	74	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	78	74	69	78	71	66	78	68	63	78	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	81	80	73	81	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	73	73	73	73	73	67	73	73	64	73	70	62	73	67	60	73	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	73	70	62	73	67	59	72	64	57	70	62	55	67	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	73	73	70	73	73	72	64	73	70	62	73	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38	48	33
			Exposed	73	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	76	79	78	73	79	75	70	79	72	67	79	69	64	79	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	79	69	64	79	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

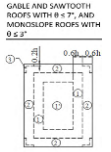
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

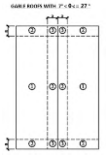
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

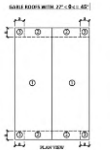
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

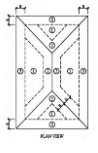












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

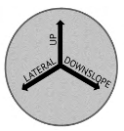
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

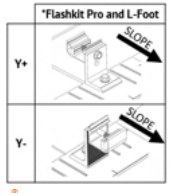
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	56	65	61	54	65	58	51
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	60	65	64	57	65	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	61	54	66	57	66	61	54	66	58	52	63	55	43
			Exposed	66	66	66	66	66	66	66	66	66	66	66	65	66	66	62	66	66	60	66	65	58	66	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	71	65	73	67	62	73	63	59	73	60	56	70	57	53
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	65	73	68	63	73	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	58	65	65	59	65	59	52	63	56	43	60	53	38	57	49	34
			Exposed	65	65	65	65	65	63	65	65	61	65	65	58	65	64	56	65	62	54	65	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	63	56	66	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	66	66	64	66	66	61	66	66	58	66	63	56	66	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	65	60	73	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	73	73	69	73	71	66	73	68	63	73	65	61	73	63	58	73	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	76	76	73	76	76	70	76	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	74	69	64	74	66	61	74	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	77	71	78	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	78	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	56	63	61	54	63	58	51
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	57	63	61	53	63	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	54	63	58	52	63	55	43
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	63	54	63	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	62	68	63	59	68	60	56	68	57	53
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	63	59	68	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	72	66	70	68	63	73	65	62	57	54	44
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	58	63	63	59	63	59	52	63	56	43	60	53	38	57	49	34
			Exposed	63	63	63	63	63	63	63	63	61	63	63	58	63	63	56	63	62	54	63	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	56	63	63	56	63	61	54	63	58	52	63	55	43	59	52	34
			Exposed	63	63	63	63	63	61	63	63	58	63	63	56	63	62	54	63	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	34	54	40	45
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	60	68	57	53	68	57	53	66	55	48	63	52	40	60	44	36
			Exposed	68	68	68	68	68	66	68	68	63	68	65	61	68	63	58	68	63	59	68	64	60	68	63	59	68	60	56	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	68	71	70	64	69	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	73	73	73	73	73	70	73	73	67	73	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	67	70	68	63	58	70	70	60	70	64	60	70	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	70	69	64	70	66	61	70	63	59	70	61	56	70	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	72	66	73	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	74	74	68	74	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	51
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	57	49	58	55	41	58	52	36	56	46	48
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	57	59	59	54	59	58	52	58	55	43
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	54	59	58	51	59	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	60	56	63	57	53
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	55	63	56	52	63	53	44	62	49	38
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	66	69*	68*	63	67*	64	60	63	62	57
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	68*	63	68*	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	43	58	53	38	57	49	34
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	53	58	56	44	58	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	59	52	58	56	44	57	53	38	56	47	34	54	40	45
			Exposed	59	59	59	59	59	59	59	59	58	59	59	56	59	59	54	59	59	52	59	57	47	59	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	57	53	62	55	48	61	52	40	59	44	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	61	63	63	58	63	61	56	63	58	54	63	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	70*	70*	64	67*	65	60	63	62	57	61	59	54	59	56	52	57	54	44
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	69*	65	69*	68*	62	69*	65	60	67*	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	54	61	58	50	61	55	41	59	52	36	56	45	48	53	40	42
			Exposed	61	61	61	61	61	59	61	61	57	61	61	55	61	60	53	61	57	49	61	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	59	61	61	59	61	61	57	61	61	55	61	58	52	60	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	61	61	59	61	61	57	61	61	54	61	59	52	61	57	47	61	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	64	60	66	60	56	65	57	53	63	54	45	62	49	38	59	41	34	56	36	45
			Exposed	66	66	64	66	66	61	66	63	59	66	61	56	66	58	54	66	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	74*	75*	75*	71	75*	75*	68	74*	70	66	69	69	64	67	65	60	64	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	75*	75*	68	75*	71	65	71	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

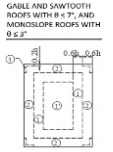
* Cells with an astriks indicates that the L-Foot must be oriented in the Y- direction as indicated in the image below.

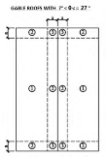
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

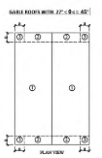
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

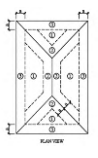












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

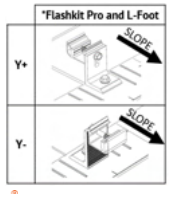
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	49	54	54	41	54	52	36	54	46	48
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	54	43
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	41	54	52	36	54	43	48	53	38	43
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	62*	62*	57	53	
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	60*	55	62*	56	52	62*	53	44	62*	49	38	59	41	34
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	63*	62*	59	62*	60*	55	62*	56	52	62*	53	44
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	59*	64*	61*	56	61*	58*	53	58*	55	48	55	53	41
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	43	54	54	53	38	54	34
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	44	54	53	37	54	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	44	54	53	38	53	47	34	52	40	45
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	47	54	53	38	54	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	61*	57	62*	57	53	61*	55	48	57	52	40	56	44	36
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	62*	62*	58	62*	61*	56	62*	58	54	62*	55	49	62*	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	63*	62*	62*	60*	60*	60*	57*	58*	58*	54	59*	56	52	57*	54	44
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	60*	65*	63*	58*	63*	59*	54	59*	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	54	56	56	50	56	55	41	56	52	36	56	45	48	53	40	42
			Exposed	56	56	56	56	56	56	56	56	56	55	56	56	53	56	56	49	56	56	43	56	52	36	56	44	47	53	38	41	47	33	36	40	44	91	36	39	29		
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	52	56	55	42	55	52	36	54	43	48	53	38	42	48	33	38	
			Exposed	57	57	57	57	57	57	57	57	54	57	57	52	57	57	47	57	55	41	57	53	38	56	44	48	53	37	41	45	48	36	38	42	92	34	37	29	45	33	25
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	60	56	61	57	53	60	54	45	59	49	38	57	41	34	56	36	45
			Exposed	62	62	62	62	62	62	59	62	61	56	62	58	54	62	56	52	62	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90		
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	66*	66*	65*	65*	64*	66*	65*	60	64*	61	56	59	58	53	57	55	48	55	53	41	53	47	36			
			Exposed	67*	67*	67*	67*	67*	65*	67*	67*	63*	67*	66*	60	67*	63*	58	65*	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	41	50	50	36	50	46	48
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	48	50	43
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	55*	56*	56*	52*	56*	53*	44	56*	49	38	56*	41	34
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	57*	57*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	59*	58*	53*	58*	55*	48	55*	53*	41
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	38	50	49	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	37	50	47	49	50	40	43	50	35	38	43	47	33
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	38	50	46	33	50	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	48	56*	56*	40	55*	44	36
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	54*	56*	55*	49	56*	52*	40	56*	42	34	56*	36	45	54*	48	40	51	43	36
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	57*	57*	56*	56*	54*	54*	52*	53*	53*	44				
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	55*	59*	56*	51*	56*	53*	41	53*	47	36	47	40	48	40	36	43
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	41	52	52	36	52	45	48	52	40	42
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	43	52	52	36	52	44	47	52	38	41	47	33	36	40	44	91	36	39	29
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	42	52	52	36	52	43	48	51	38	42	48	33	38
			Exposed	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	41	53	53	38	53	44	48	53	37	41	45	48	36	38	42	92	34	37	29	45	33	25		
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	60*	56	60*	57	53	59*	54	45	58*	49	38	55	41	34	53	36	45
			Exposed	61*	61*	61*	61*	61*	61*	61*	59*	61*	61*	56	61*	58*	54	61*	56	52	61*	54	48	61*	50	39	59*	40	33	55	35	43	53	46	38	47	40	34	40	36	90	
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	62*	60*	60*	60*	59*	59*	56*	57*	57*	53	57*	55*	48	55*	53	41	52	47	36			
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	60*	64*	63*	58*	63*	61*	56	62*	59*	54	58*	55*	49	55*	52	40	52	44	35	42	38	46	37	34	40	33	45	36
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	47	47	46	48
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	49*	38	52*	41	34
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	41
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	38	47	47	34
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	47	47	47	49	47	40	43	47	35	38	43	47	33
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	47	34	47	40	45
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	38	46	43	47	34	38	90
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	40	51*	44	36
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	52*	40	52*	42	34	52*	36	45	52*	48	40	51*	43	36
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	51*	44*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41	52*	47*	36	47*	40	48	40	36	43
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	36	49	45	48	49	40	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	36	49	44	47	49	38	41	47	33	36	40	44	91	36	39	29
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	50	36	49	43	48	48	38	42	47	33	38
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	38	50	50	44	48	50	37	41	45	48	36	38	42	92	34	37	29	45	33	25
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	57*	54*	45
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	54*	48	55*	50	39	55*	40	33	55*	35	43	53*	46	38	47	40	34	40	36	90
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	56*	56*	55*	55*	53*	53*	53*	49*	52*	52*	41	50*	47	36
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	54*	58*	55*	49*	55*	52*	40	52*	44	35	42	38	46	37	34	40	33	45	36

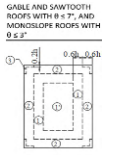
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

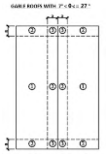
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

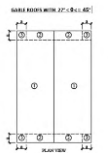
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

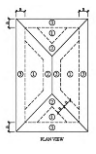












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

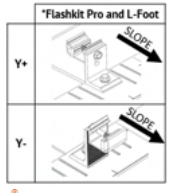
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	92	102	102	88	102	98	85	102	91	79	98	85	73	92	79	69	86	75	65	81	71	62	77	68	60
			Exposed	102	102	92	102	101	87	102	96	83	102	92	79	102	88	76	97	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	95	81	102	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	102	102	89	102	98	84	102	92	80	102	88	76	99	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	82	103	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	103	103	99	103	103	93	103	97	88	103	92	83	103	87	79	103	83	76	101	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	97	103	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	103	103	103	103	103	100	103	103	95	103	99	90	103	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	102	102	95	102	102	90	102	99	85	102	94	81	102	90	78	100	86	75	96	83	72	89	77	67	83	72	63	78	68	60	73	65	58	72	62	55	66	59	53
			Exposed	102	90	78	99	85	74	94	81	71	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	102	102	91	102	101	86	102	95	82	102	90	78	102	86	74	97	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	102	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	103	103	102	103	103	96	103	100	90	103	95	86	103	90	82	103	86	78	103	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	103	90	81	103	103	85	77	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	103	103	103	103	103	103	103	103	97	103	102	93	103	97	88	103	93	84	98	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	103	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	102	100	87	102	95	82	102	91	78	100	87	75	96	83	72	92	80	69	88	77	66	82	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	96	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	102	97	83	102	91	79	102	87	75	97	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	103	102	92	103	96	87	103	91	82	103	86	78	103	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	103	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	59	55	53	59	56	53	53	58	54
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	85	95	91	79	95	85	73	92	79	69	86	75	65	81	71	62	77	68	60
			Exposed	95	95	92	95	95	87	95	95	83	95	92	79	95	88	76	95	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	95	81	96	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	96	96	89	96	96	84	96	92	80	96	88	76	96	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	82	100	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	100	100	99	100	100	93	100	97	88	100	92	83	100	87	79	100	83	76	100	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	97	102	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	102	102	102	102	102	100	102	102	95	102	99	90	102	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	81	95	90	78	95	86	75	95	83	72	89	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	95	90	78	95	85	74	94	81	71	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	96	96	91	96	96	86	96	95	82	96	90	78	96	86	74	96	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	96	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	100	100	100	100	96	100	100	90	100	95	86	100	90	82	100	86	78	100	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54	
			Exposed	100	90	81	100	85	77	100	80	73	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	102	102	102	102	102	102	102	102	97	102	102	93	102	97	88	102	93	84	98	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	102	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	95	95	87	95	95	82	95	91	78	95	87	75	95	83	72	92	80	69	88	77	66	82	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	95	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	96	96	83	96	91	79	96	87	75	96	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	101	101	92	101	96	87	101	91	82	101	86	78	101	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	101	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	59	55	53	59	56	53	53	58	54
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	79	86	85	73	86	79	69	86	75	65	81	71	62	77	68	60
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	76	86	84	73	86	81	70	86	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	81	87	87	75	87	80	70	87	75	65	82	70	62	77	66	60	73	64	58
			Exposed	87	87	87	87	87	84	87	87	80	87	87	76	87	84	72	87	80	69	87	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	82	92	84	76	92	78	71	92	73	67	87	69	64	83	65	61
			Exposed	92	92	92	92	92	92	92	92	88	92	92	83	92	87	79	92	83	76	92	80	73	92	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	80	75	71	64	70	67	61	66	64	59	63	61	57			
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	86	75	86	83	72	86	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	86	86	78	86	85	74	86	81	71	86	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	87	87	87	87	87	86	87	87	82	87	87	78	87	86	74	87	82	71	87	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	87	86	74	87	81	70	87	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	86	92	90	82	92	86	78	92	82	75	92	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	92	90	81	92	85	77	92	80	73	92	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	93	96	96	88	96	93	84	96	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	96	96	88	96	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	75	86	83	72	86	80	69	86	77	66	82	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	86	83	72	86	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	87	87	83	87	87	79	87	87	75	87	82	71	87	79	68	87	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	87	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	94	94	92	94	94	87	94	91	82	94	86	78	94	82	75	94	78	71	94	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	94	82	74	94	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	97	97	97	97	97	89	97	94	85	97	89	81	93	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	97	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

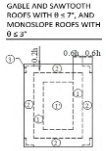
* Cells with an astrisks indicates that the L-Foot must be oriented in the Y- direction as indicated in the image below.

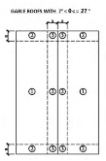
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

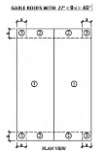
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

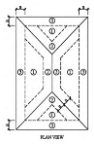












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

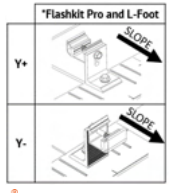
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	75	65	80	80	71	62	77	68	60
			Exposed	80	80	80	80	80	80	80	80	80	80	80	79	80	80	76	80	80	73	80	80	70	80	75	65	80	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	70	62	77	66	60	73	64	58
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	72	80	80	69	80	80	76	67	80	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	84	76	87	78	71	87	82	73	67	87	69	64	83	65	61
			Exposed	87	87	87	87	87	87	87	87	87	87	87	83	87	87	79	87	83	76	87	80	73	87	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	85	77	86	80	73	81	76	69	76	72	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57			
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	77	67	80	72	68	78	68	60	73	65	58	70	62	55	66	59	53			
			Exposed	80	80	78	80	80	74	80	80	71	80	78	67	80	75	65	80	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	74	80	80	71	80	79	68	80	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	80	80	74	80	80	70	80	77	67	80	73	64	80	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	82	87	87	82	87	86	78	87	82	75	87	75	69	87	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	87	87	81	87	85	77	87	80	73	87	76	70	87	73	67	87	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	90	90	88	90	90	83	90	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	88	88	88	88	88	87	88	88	82	88	86	78	88	82	75	88	78	71	88	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	88	82	74	88	77	71	88	73	67	88	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	92	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	65	78	71	62	77	68	60
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	75	65	78	71	62	76	66	59	72	63	57	68	61	54	65	58	60			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	70	62	77	66	60	73	64	58
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	72	78	78	69	78	76	67	78	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	78	71	82	73	67	82	69	64	82	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	76	82	80	73	82	73	67	82	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	85	77	84	80	73	81	76	69	76	72	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57			
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	68	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	78	78	78	78	78	74	78	78	71	78	78	67	78	75	65	78	72	63	78	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	71	78	78	68	78	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	78	78	74	78	78	70	78	77	67	78	73	64	78	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	82	75	82	75	69	82	70	64	82	66	61	78	63	59	74	60	56	70	58	54
			Exposed	82	82	81	82	82	77	82	80	73	82	76	70	82	73	67	82	70	64	82	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	81	85	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58			
			Exposed	86	86	86	86	86	83	86	86	79	86	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	84	84	84	84	84	84	84	84	82	84	84	78	84	82	75	84	78	71	84	75	68	84	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	84	82	74	84	77	71	84	73	67	84	70	64	84	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	88	88	88	88	88	88	88	88	88	88	88	85	88	88	81	87	86	77	86	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	88	88	81	88	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	65	74	71	62	74	68	60
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	62	74	66	59	72	63	57	68	61	54	65	58	60			
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	70	62	75	66	60	73	64	58
			Exposed	75	75	75	75	75	75	75	75	75	75	75	72	75	75	69	75	75	67	75	75	71	63	75	66	59	71	63	57	67	60	54	64	57	60	61	55	57		
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	71	78	73	67	78	69	64	78	65	61
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	64	78	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	75	80	77	70	77	72	65	72	68	62	68	65	60
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	C	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	76	69	76	76	66	76	71	63	76	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	65	76	72	63	76	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55		
			Exposed	76	76	68	76	76	74	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	71	80	75	68	80	69	64	80	65	61	76	62	58	72	59	55	68	57	53	65	54	59		
			Exposed	80	80	74	80	77	71	80	73	67	80	70	64	80	67	62	80	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	77	83	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	84	84	81	84	84	77	84	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	66	76	71	63	76	67	59	72	64	57	68	61	54	65	58	60	62	56	57		
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	65	76	72	63	76	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55		
			Exposed	76	76	68	76	76	74	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	71	80	75	68	80	69	64	80	65	61	76	62	58	72	59	55	68	57	53	65	54	59		
			Exposed	80	80	74	80	77	71	80	73	67	80	70	64	80	67	62	80	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	77	83	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	84	84	81	84	84	77	84	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

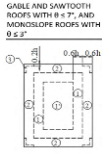
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

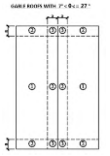
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

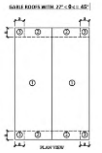
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

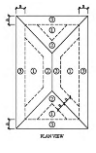












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

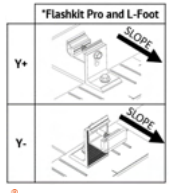
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	68	60			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	57	68	61	54	65	58	60
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	62	70	66	60	70	64	58			
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70	70	67	70	70	63	70	66	59	70	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	73	67	75	69	64	75	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	73	67	75	68	63	75	64	60	75	61	58	72	59	55	68	57	53
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	65
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	60	69	65	58	69	62	55
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	65	69	69	63	69	69	61	69	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53	59	53
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	70	64	70	68	61	70	64	58	69	61	55	65	59	53	62	56	58
			Exposed	70	70	70	70	70	70	70	70	67	70	70	64	70	70	62	70	67	60	70	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	64	75	66	61	74	63	59	73	60	56
			Exposed	75	75	75	75	75	75	75	75	75	70	75	75	70	75	73	67	75	70	64	75	67	62	75	63	59	73	60	56	69	57	53	65	54	59	62	60	58	54	
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	72	65	72	68	62	68	65	60	65	62	58	
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	80	80	72	80	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	71	63	73	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	73	73	72	73	73	68	73	73	65	73	72	63	73	69	61	73	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	73	73	73	73	73	73	73	73	73	71	73	73	68	73	73	65	73	72	63	73	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	59	53	55
			Exposed	73	73	68	73	73	65	73	71	63	73	67	60	73	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	71	77	75	68	77	69	64	76	65	61	75	62	58	72	59	55	68	57	53	65	54	59
			Exposed	77	77	74	77	77	71	77	73	67	77	70	64	77	67	62	77	64	60	77	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77	80	80	74	78	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81	81	81	81	81	81	81	81	73	81	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	63	57	65	61	54	65	60
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60	65	64	58
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	57	65	60	54	64	57	60	61	55
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	64	72	65	61
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	68	63	72	64	60	72	61	58	72	59	55	68	57	53
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	75	75	73	74	74	69	73	72	65			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	62	55	65	59	53
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	61	65	65	58	65	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	61	65	64	58	65	61	55	64	59	53	62	56	58
			Exposed	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	59	65	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50		
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	66	61	71	63	59	70	60	56	68	58	54			
			Exposed	72	72	72	72	72	72	72	72	72	70	72	72	67	72	70	64	72	67	62	72	63	59	72	60	56	69	57	53	65	54	59	62	60	56	60	58	54		
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	75	74	74	70	73	72	65	72	68	62	68	65	60	65	62	58	
			Exposed	77	77	77	77	77	77	77	77	77	76	77	77	72	77	77	69	77	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58		
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	63	68	67	59	68	64	57	68	61	54	65	58	60	62	56	57
			Exposed	68	68	68	68	68	68	68	68	65	68	68	63	68	68	61	68	67	59	68	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	68	63	68	67	60	68	63	57	67	60	54	64	57	60	61	55	57
			Exposed	68	68	68	68	68	65	68	68	63	68	67	60	68	65	59	68	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	69	64	74	65	61	73	62	58	72	59	55	68	57	53	65	54	59
			Exposed	74	74	74	74	74	71	74	74	70	74	67	64	74	67	62	74	64	60	74	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	77	77	77	74	76	76	69	74	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	79	79	79	79	79	77	79	79	73	79	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60			
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	54	61	58	60
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	54	61	58	60
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	68	68	68	64	68	68	61	68	68	59	55	68	57
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	74*	75*	75*	73*	74*	74*	69	73*	70	65
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	75*	74*	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	55	61	59	53
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	60	61	56	57	60	54	55	57	59	53
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	53	60	56	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	53	60	56	54	56	58	53	54	56	50
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	66	61	67	63	59	66	60	56	65	58	54
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	67	62	68	63	59	68	60	56	68	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	67	73*	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72	75*	75*	69	74*	74*	67	73*	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58		
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	57	64	64	61	54	64	58	60	62	56	57		
			Exposed	64	64	64	64	64	64	64	64	64	63	64	64	61	64	64	59	64	64	57	64	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47		
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	64	60	64	64	63	64	64	60	64	64	60	61	55	57	59	53	55
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	60	64	64	57	60	61	55	57	58	52	53	55	42
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	69	64	71	65	61	70	62	58	68	59	55	67	57	53	65	54	59
			Exposed	71	71	71	71	71	71	71	71	67	71	70	64	71	67	62	71	64	60	71	63	59	71	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	83*	83*	76	82*	82*	74	74	74	69	72	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81*	81*	81*	81*	81*	77	81*	81*	73	81*	77	70	76	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

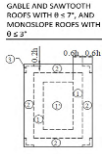
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

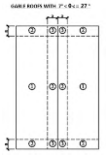
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

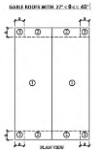
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

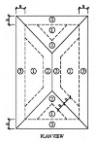












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

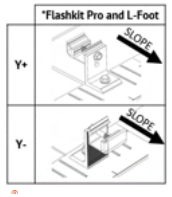
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60			
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	57	60	58	55	57
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	61	58	64	59	55	64	57	53
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	70*	70*	69*	69*	69*	68*	68*	65
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	71*	64	70*	67*	61	66*	64	59	63	61	57
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	56	57	57	54	55	57	59	53
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	58	58	56	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	53	58	55	58	58	53	55	56	58	53	54	56	50
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	63	59	64	60	56	63	58	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	63	59	64	60	56	64	57	53	64	54	59	62	60	56	60	58	54
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	68*	68*	65	69*	68*	62	67*	65	60	63	62	58	
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	69*	72*	72*	67*	71*	69*	63	67*	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	60	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	59	60	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	60	54	61	57	60	60	55	57	59	53	55
			Exposed	61	61	61	61	61	61	61	61	61	61	61	60	61	61	59	61	61	57	61	61	55	61	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	65	59	55	64	57	53	63	54	59
			Exposed	67	67	67	67	67	67	67	67	67	64	67	67	62	67	64	60	67	63	59	67	59	56	67	56	53	64	54	58	61	59	55	59	56	53	56	54	58	54	50
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	69	72*	70	65	68	67	62	66	64	59	63	61	56	61	59	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	70	74*	74*	67	74*	71	64	72*	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	57
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	57	53
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	60	65*	61	58	65*	59	55	65*	57	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	67*	61*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	67*	61*	66*	64*	59	63*	61*	57			
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	54	55	54	59	53
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58	55	53	55	55	58	53	54	56	50
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59	61	60	56	60	58	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	65*	65*	65*	64*	64*	63*	63*	63*	60*	61*	61*	58
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	63*	67*	64*	60*	64*	61*	57	61*	59	54	58	56	60	56	54	58
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	60	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	57	57	53	54	56	58	52	54	56	47
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	57	60	57	53	55
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	62	58	63	59	55	62	57	53	61	54	59
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	63	59	64	59	56	64	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	67*	67*	65	68*	67*	62	66*	64	59	62	61	56	61	59	54
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	72*	72*	67*	72*	71*	64	71*	68*	62	67*	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

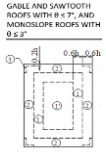
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

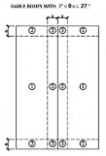
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

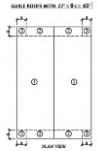
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

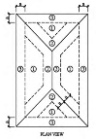












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

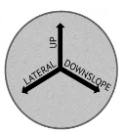
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

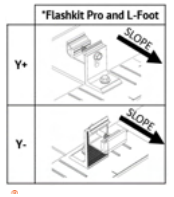
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	76	81	81	73	81	80	71	81	77	68	81	72	64	77	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	81	81	73	81	79	70	81	76	67	81	73	64	80	70	62	77	68	60	74	65	58	69	61	54	65	58	51	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	74	81	81	71	81	78	69	81	75	66	80	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	81	81	71	81	77	68	81	74	65	81	71	63	78	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	72	67	82	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	82	82	78	82	80	74	82	76	71	82	73	68	82	70	65	82	68	63	79	65	60	74	61	57	70	57	53	66	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	82	76	82	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	82	82	82	82	82	78	82	82	75	82	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	81	81	75	81	81	78	69	81	75	66	81	72	63	79	69	61	76	67	59	71	63	55	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	42
			Exposed	81	72	63	78	68	61	74	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	79	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	82	82	79	82	82	76	82	78	72	82	75	69	82	72	67	82	69	64	81	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	82	72	66	82	68	63	80	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	82	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	81	77	68	81	73	65	80	70	62	77	67	59	73	64	57	71	62	55	68	60	53	64	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	73	64	57	70	61	55	67	59	52	64	56	47	62	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	82	80	73	82	76	70	82	72	67	82	69	64	81	67	62	78	64	60	75	62	57	70	58	54	66	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	81	67	62	77	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	42	30
		27-45	Interior	82	82	78	82	81	74	82	77	71	80	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	76	76	73	76	76	70	76	76	67	76	73	64	76	70	62	76	68	60	74	65	58	69	61	54	65	58	51	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	76	76	71	76	76	68	76	74	65	76	71	63	76	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	72	67	79	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	79	79	78	79	79	74	79	76	71	79	73	68	79	70	65	79	68	63	79	65	60	74	61	57	70	57	53	66	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	63	76	69	61	76	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	76	72	63	76	68	61	74	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	76	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	79	72	66	79	68	63	79	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	81	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	76	76	70	76	76	75	76	76	69	76	76	67	76	76	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	76	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	79	72	66	79	68	63	79	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	81	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	60	67	64	57	67	61	54	66	58	52	63	56	43
			Exposed	67	67	67	67	67	67	67	67	67	67	67	64	67	67	62	67	67	60	67	65	58	67	61	54	65	58	51	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	58	67	62	55	67	59	52	63	56	44	60	53	36
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	60	67	65	58	67	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	72	67	73	68	63	73	64	59	73	61	56	70	58	54	67	55	50
			Exposed	73	73	73	73	73	73	73	73	71	73	73	68	73	70	65	73	68	63	73	65	60	73	61	57	70	57	53	66	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	71	76	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	76	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	66	67	67	63	67	67	61	67	67	59	67	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	67	67	63	67	67	61	67	66	58	67	63	56	67	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	61	67	67	59	67	64	57	67	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	67	67	61	67	66	59	67	63	56	67	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	73	72	66	73	68	63	73	66	61	73	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	74	76	76	76	71	76	74	68	76	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	76	76	71	76	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	61	67	67	59	67	64	57	67	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	67	67	59	67	64	56	67	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	61	67	67	59	67	64	57	67	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	67	67	61	67	66	59	67	63	56	67	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	73	72	66	73	68	63	73	66	61	73	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	74	62	57	70	58	54	66	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	74	67	62	74	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	42	30
		27-45	Interior	77	77	77	77	77	77	77	77	71	77	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30

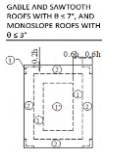
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

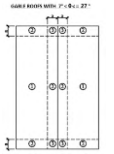
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

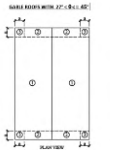
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

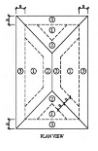












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

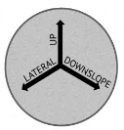
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

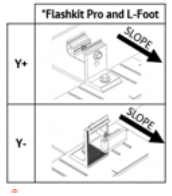
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	52	60	56	43
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	54	60	58	51	60	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	59	52	60	56	44	60	53	36
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	52	60	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	59	67	67	56	67	58	54	67	55	50
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	63	67	65	60	67	61	57	67	57	53	66	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	63	70	65	60	66	62	57	62	57	63	59	55
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	59	52	60	56	44	60	53	36	57	49	42
			Exposed	60	60	60	60	60	60	60	60	58	60	60	56	60	60	54	60	59	52	60	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	47	60	53	37	58	49	48	55	39	42	52	33	38
			Exposed	60	60	60	60	60	59	60	60	56	60	60	54	60	58	52	60	56	46	60	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	58	67	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	67	67	66	67	67	63	67	66	61	67	63	58	67	60	56	67	58	54	67	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	71	66	71	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	72	72	71	72	72	68	72	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	64	69	67	62	69	64	60	69	62	57	69	58	54	66	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	69	67	62	69	64	59	69	61	57	69	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	30	25
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	68	73	71	66	73	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	73	71	66	73	68	63	70	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	52	58	56	43
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	51	58	55	41	58	52	34	56	45	45	54	38	40
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	43	58	52	34	56	44	45	54	36	36
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	61	56	62	58	54	62	55	50
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	61	57	62	57	53	62	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	70*	65	60	63	62	57	61	59	55
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67	69*	69*	64	69*	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	36	57	49	42
			Exposed	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	56	47	58	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28	45	33	25
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	57	47	58	53	37	57	49	48	55	39	42	52	33	38
			Exposed	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	56	46	58	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	59	54	62	55	51	61	52	40	60	45	34	58	37	45
			Exposed	62	62	62	62	62	62	62	62	61	62	62	58	62	60	56	62	58	54	62	56	52	62	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	68*	69*	69*	66	68*	66	62	64	63	58	62	60	55	60	57	52	57	54	44	55	52	36
			Exposed	69*	69*	69*	69*	69*	68*	69*	69*	65	69*	68*	62	69*	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	58	64	54	48	62	52	37	59	41	32	56	34	43	54	46	38			
			Exposed	64	64	62	64	64	59	64	61	57	64	58	54	64	56	52	64	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	30	25
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	69	75*	69	68	75*	69	66	69	69	63	67	67	61	65	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	75*	69	66	69	68	63	69	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	43			
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	41	53	52	34	53	45	45	53	38	40
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44	53	53	36			
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54			
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	57	60*	60*	54	60*	60*	54	60*	60*	54	60*	60*	54	60*	60*	52	60*	57	52			
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	62*	57*	62*	58*	54
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	62*	57*	62*	58*	54	59*	56*	50	56*	53	40	53	48	34
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	44	53	53	36	53	49	48	53	41	42
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	37	53	48	47	53	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	53	37	53	49	48	52	39	42	51	33	38
			Exposed	54	54	54	54	54	54	54	54	54	54	54	52	54	54	46	54	54	40	54	54	40	54	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	58	54	60*	55	51	57	52	40	56	45	34	55	37	45
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54	60*	56	52	60*	53	41	60*	44	33	57	35	43	54	46	38	52	40	34	43	36	30			
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	62*	57*	62*	58*	54
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	60*	63*	63*	58*	63*	61*	56*	60*	57*	52	57*	54	43	54	49	35	49	40	46	39	34	40	33	45	36			
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	52	56	55	42	56	52	34	56	45	45	53	38	40	50	33	35
			Exposed	56	56	56	56	56	56	56	56	54	56	56	52	56	56	47	56	55	41	56	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	54	56	54	45	56	53	36	56	45	46	53	40	49	47	35	40
			Exposed	56	56	56	56	56	55	56	56	52	56	56	47	56	54	39	56	52	34	56	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	58	54	60	58	52	57	41	32	56	34	43	54	46	38
			Exposed	60	60	60	60	60	59	60	60	57	60	58	54	60	56	52	60	54	47	60	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	30	25
		27-45	Interior	65*	65*	65*	65*	65*	63*	65*	65*	60	65*	63*	58	65*	61	56	62*	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	61	64*	62*	57	63*	59	54	57	56	50	55	53	40	53	47	34	48	39	45			

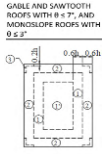
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

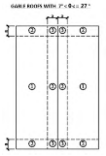
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

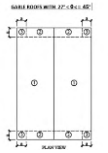
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

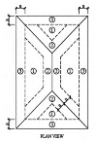












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

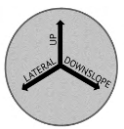
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

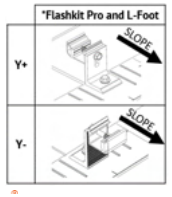
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	34	49	45	45	49	38	40
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	49	49	36
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	34	49	44	45	49	36	40	49	48	36
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	54*	50
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	53*	55*	54*	47	55*	51*	37	55*	41	32	54*	34	43
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	56*	56*	55*	55*	55*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	55*	50*	56*	53*	40	53*	48*	34
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	36	49	49	48	49	41	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	37	49	48	47	49	39	41	49	33	36	42	44	51	36	39	28
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	49	49	49	48	49	39	42	48	33	38			
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	40	49	49	32	49	38	41	49	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	51*	56*	52*	40	55*	45	34	54*	37	45			
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	53*	41	55*	44	33	54*	35	43	54*	46	38	52*	40	34	43	36	30
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	55*	55*	55*	54*	54*	52*	52*	52*	44	51*	51*	36
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	52*	57*	54*	43	54*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	42	52	52	34	52	45	45	52	38	40
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	41	52	52	46	52	52	46	52	52	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	35	51	45	46	50	36	40	49	47	35
			Exposed	52	52	52	52	52	52	52	52	52	52	52	47	52	52	39	52	52	34	52	48	48	52	36	40	48	47	35	37	40	30	32	35	26	43	31	29	38	29	21
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	58*	54	48	57*	52	37	56*	41	32	53	34	43	51	46	38
			Exposed	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	59*	56*	52	59*	54	47	59*	52	40	59*	42	32	56*	33	42	53	44	36	48	38	32	39	34	28	34	30	44	30	25
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	58*	58*	57*	56*	56*	54*	55*	55*	50	55*	53*	40	53*	47	34	48	39	45
			Exposed	61*	61*	61*	61*	61*	61*	60*	61*	61*	58*	61*	61*	56*	61*	58*	54*	60*	57*	52	56*	53*	41	53*	46	33	45	37	44	35	48	38	47	42	34	42	38	30			
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	34	46	45	45	46	38	40
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	46	46	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	34	46	44	45	46	36	40	46	48	36
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	47*	51*	51*	37	51*	41	32	51*	34	43
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	40	50*	48*	34
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	46	48	46	41	42
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	47	46	39	41	46	33	36
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	48	46	46	37	46	46	38
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	32	46	38	41	46	46	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	41	51*	44*	33	51*	35	43	51*	46	38	50*	40	34	49*	37	45
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43*	50*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	42	48	48	34	48	45	45	48	38	40
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	41	48	48	36	48	46	46	48	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	35	48	45	46	47	36	40	47	35	40	42	31	
			Exposed	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34	48	48	48	48	36	40	48	47	35	37	40	30	32	35	26	43	31	29	38	29	21
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	53*	53*	48*	52*	52*	37	53*	41	32	52*	34	43	51*	46	38
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47	54*	54*	42	52*	40	54*	42	32	53*	44	36	48*	38	53*	33	42	52*	44	36	48*	38	34	30	25
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	52*	52*	52*	50*	51*	51*	40	49*	47*	34	48*	39	45
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	53*	41	53*	46*	33	45	37	44	35	48	38	47	42	34	42	38	30			
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	34	43	43	45	43	38	40
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	34	43	43	43	43	43	45	43	36	40	43	48	36
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	32
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	34
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	48	43	41	42
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	32	43	39	41	43	33	38
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32	43	43	43	43	43	43	43	43	38	43	43	38
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	38
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	35	44*	40*	46	39*	34	40	33	45	36
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	34	45	45	45	45	38	40
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	36	45	45	46	45	37	39	45	48	34	39	42	30	33	37	26	45	33	29	38	29	21
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	34	45	45	45	45	42	45	45	36	40	45	43	33
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	39	45	45	34	45	45	48	45	36	40	45	47	35	37	40	30	32	35	26	43	31	29	38	29	21	45	36	30
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	48*	50*	50*	37	49*	41	32	48*	34	43	47*	46	38
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	47*	50*	50*	40	50*	42	32	50*	33	42	50*	44	36	48*	38	32	39	34	28	34	30	44	30	25
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	48*	41*	48*	47*	34	46*	39	45
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	33	45*	37	44	35	48	38	47	42	34	42	38	30

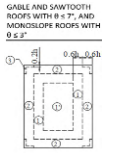
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

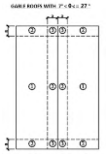
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

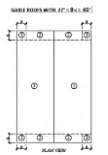
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

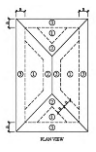












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

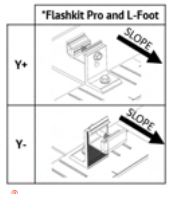
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	45	40	38	40		
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	34	43*	43*	45	43*	36	40	43*	48	36
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	32	41*	34	43			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	48	40	40	42		
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	47	40	39	41	40	33	36	40	44	51	36	39	29
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	48	43*	43*	37	43*	43*	42	43*	33	38
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40	43*	43*	32	43*	38	41	43*	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	34	41*	37*	45			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	33	41*	35*	43	41*	46	38	41*	40	34	41*	36	30			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	46	39*	34*	40	33*	45	36
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	34	43	43	45	43	38	40	43	33	35
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	36	43	43	46	34	39	42	30	33	37	39	43	48	34	39	42	30	45	29	29
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	35	43	43	46	43	36	40	43	47	35	40	42	31
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	34	43	43	48	43	36	40	43	47	35	37	40	30	32	35	26	43	31	29	38	29	21	
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	41*	32	45*	34	43	45*	46	38
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	42*	32	45*	33	42	45*	44	36	45*	38	32	39*	34	28	34	30	25	
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	34	43*	39*	45
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	33	43*	37*	44	35	48	38	47	42	34	42	38	30
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	45	38	38	40		
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34	41*	41*	45	41*	36	40	41*	48	36
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	32*	37*	34*	43	
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	47	38	38	42		
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	47	38	38	41	38	33	36	38	44	51	36	39	29
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	48	41*	41*	41*	41*	39*	42	41*	33	38
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	32	41*	38*	41	41*	32	36	40*	42	32	34	37	28	45	33	25	
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	35*	43	37*	46	38
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	35*	43	37*	46	38	37*	40	34	37*	36	30
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*	36*	34*	40	33*	45*	36
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	45	40	40	40	40	33	35		
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	46	40	37	39	40	48	34	39	42	30	33	37	26	45	33	29	
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	35	43*	43*	46	43*	36	40	43*	47	35	40	42	31
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39	43*	43*	34	43*	43*	48	43*	36	40	43*	47	35	37	40	30	32	35	26	43	31	29	38	29	21	
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	32	41*	34	43	41*	46	38
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	32	41*	33	42	41*	44	36	41*	38	32	39*	34	28	34	30	25	
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	39*	39*	39*	34*	39*	39*	45			
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	33*	39*	37*	44	35*	48	38	47	42	34	42	38	30

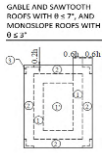
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

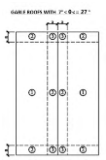
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

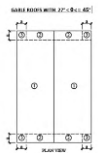
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

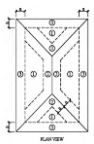












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

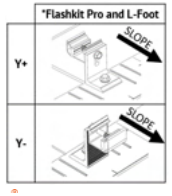
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	91	101	101	87	101	97	84	101	90	78	97	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	101	101	91	101	100	86	101	95	82	101	91	79	101	87	75	96	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	93	80	102	86	74	94	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	102	102	88	102	97	83	102	91	79	102	87	75	98	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	71	92	72	66	86	68	63	82	65	61
			Exposed	102	102	98	102	102	92	102	96	87	102	91	82	102	86	79	102	82	75	100	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	97	88	99	90	82	92	85	76	85	79	72	80	75	68	76	71	65
			Exposed	103	103	103	103	103	99	103	103	94	103	98	89	103	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	101	101	94	101	101	89	101	98	84	101	93	81	101	89	77	99	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	102	102	90	102	100	85	102	94	81	102	89	77	101	85	74	96	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	100	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	102	102	101	102	102	95	102	99	89	102	93	85	102	89	81	102	85	77	102	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	102	89	81	102	84	76	101	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	103	103	103	103	103	102	103	103	96	103	101	92	103	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57
			Exposed	103	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	101	99	86	101	94	82	101	90	78	99	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	102	96	82	102	90	78	102	86	74	96	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	74	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	102	101	91	102	95	86	102	90	81	102	85	77	102	81	74	98	77	71	94	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	102	81	74	97	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	103	103	98	103	103	93	103	97	88	102	93	84	96	88	80	92	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	91	95	95	87	95	95	84	95	90	78	95	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	95	95	91	95	95	86	95	95	82	95	91	79	95	87	75	95	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	93	80	95	86	74	94	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	95	95	88	95	95	83	95	91	79	95	87	75	95	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	71	92	72	66	86	68	63	82	65	61
			Exposed	99	99	98	99	99	92	99	96	87	99	91	82	99	86	79	99	82	75	99	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	97	88	99	90	82	92	85	76	85	79	72	80	75	68	76	71	65
			Exposed	102	102	102	102	102	99	102	102	94	102	98	89	102	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	95	95	94	95	95	89	95	95	84	95	93	81	95	89	77	95	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	95	95	90	95	95	85	95	94	81	95	89	77	95	85	74	95	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	95	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	99	99	99	99	99	95	99	99	89	99	93	85	99	89	81	99	85	77	99	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	99	89	81	99	84	76	99	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	102	102	102	102	102	102	102	102	96	102	101	92	102	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57
			Exposed	102	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	95	95	82	95	90	78	95	86	74	95	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	74	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	100	100	91	100	95	86	100	90	81	100	85	77	100	81	74	98	77	71	94	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	100	81	74	97	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	102	102	98	102	102	93	102	97	88	102	93	84	96	88	80	92	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	85	74	65	81	70	62	77	67	59
			Exposed	86	86	86	86	86	86	86	86	82	86	86	79	86	86	75	86	83	72	86	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	86	86	74	86	79	69	86	74	65	81	70	62	76	66	59	72	63	57
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	71	92	72	66	86	68	63	82	65	61
			Exposed	92	92	92	92	92	92	92	92	87	92	91	82	92	86	79	92	82	75	92	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	90	82	92	85	76	85	79	72	80	75	68	76	71	65			
			Exposed	95	95	95	95	95	94	95	95	89	95	94	85	95	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56			
	C	0-7	Interior	86	86	86	86	86	86	86	86	84	86	86	81	86	86	77	86	85	74	86	82	71	86	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	85	74	86	81	70	86	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	86	85	73	86	80	70	86	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	92	89	81	92	84	76	92	79	72	92	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	87	95	92	83	95	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57
			Exposed	95	95	87	95	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	86	82	71	86	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	86	86	82	86	86	78	86	86	74	86	81	71	86	78	68	86	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	86	78	67	86	74	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	93	93	91	93	93	86	93	90	81	93	85	77	93	81	74	93	77	71	93	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	93	81	74	93	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	88	80	92	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

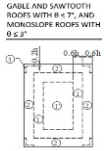
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

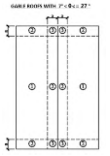
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

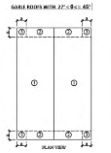
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

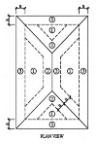












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

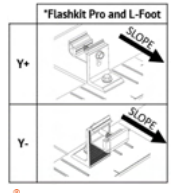
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	79	74	65	79	70	62	77	67	59						
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	69	79	75	65	79	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	65	80	70	62	76	66	59	72	63	57				
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	77	71	86	72	66	86	68	63	82	65	61			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	82	75	86	79	72	86	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	85	76	85	79	72	80	75	68	76	71	65		
			Exposed	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56			
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	74	79	79	71	79	76	66	79	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	64	79	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	70	80	78	68	80	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	80	80	73	80	80	70	80	76	66	80	73	64	80	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	81	86	86	79	86	85	77	86	81	74	86	75	68	86	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	86	86	81	86	84	76	86	79	72	86	75	69	86	72	66	86	69	64	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	87	90	90	83	90	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57			
			Exposed	90	90	87	90	90	82	90	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	74	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	88	88	88	88	88	86	88	88	81	88	85	77	88	81	74	88	77	71	88	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	88	81	74	88	76	70	88	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	88	80	91	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	91	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	74	65	78	70	62	77	67	59
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	75	65	78	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	65	78	70	62	76	66	59	72	63	57
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	71	82	72	66	82	68	63	81	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	67	82	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	85	76	83	79	72	80	75	68	76	71	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	74	78	78	71	78	76	66	78	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	64	78	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	70	78	78	68	78	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	78	78	73	78	78	70	78	76	66	78	73	64	78	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	82	75	82	68	63	81	65	61	77	62	58
			Exposed	82	82	81	82	82	76	82	79	72	82	75	69	82	72	66	82	69	64	82	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	84	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57			
			Exposed	86	86	86	86	86	82	86	86	78	86	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	74	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	83	83	83	83	83	83	83	83	81	83	83	77	83	81	74	83	77	71	83	74	68	83	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	83	81	74	83	76	70	83	73	66	83	69	64	83	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	87	87	80	87	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	65	74	70	62	74	67	59
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	65	74	70	62	74	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	65	74	70	62	74	66	59	72	63	57
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	62	74	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	71	78	72	66	78	68	63	77	65	61
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	73	67	78	68	63	78	64	60	75	61	57	71	59	55	67	56	60	64	54	58
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	76	80	79	72	79	75	68	76	71	65
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	63	74	67	60	73	64	57	69	61	55	66	59	60
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	64	74	71	62	74	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	68	74	74	68	74	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	74	74	73	74	74	70	74	74	66	74	73	64	74	74	69	74	74	66	74	74	64	74	74	64	74	74	58	68	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	68	78	69	64	77	65	61	76	62	58	73	60	56	69	57	54
			Exposed	78	78	78	78	78	76	78	78	72	78	75	69	78	72	66	78	69	64	78	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	81	74	79	76	69	76	72	65	71	68	62	67	64	60	64	62	57
			Exposed	82	82	82	82	82	82	82	82	78	82	82	75	82	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	71	76	76	68	76	76	66	76	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57			
			Exposed	76	76	71	76	76	68	76	75	65	76	71	63	76	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	74	65	76	71	63	76	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	76	76	67	76	74	64	76	70	62	76	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	77	71	80	74	68	80	68	63	79	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	80	80	74	80	76	70	80	73	66	80	69	64	80	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	83	83	77	82	81	74	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	84	84	80	84	84	76	84	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

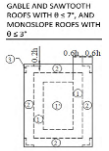
* Cells with an astrisks indicates that the L-Foot must be oriented in the Y- direction as indicated in the image below.

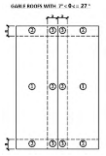
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

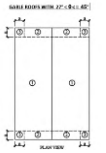
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

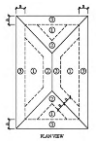












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

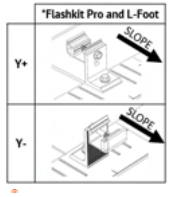
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	67	59			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	56	67	60	54	64	58	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	69	62	69	66	59	69	63	57			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	62	69	65	59	69	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	72	66	75	68	63	74	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	67	75	68	63	75	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	76	77	77	72	76	75	68	75	71	65			
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	57	69	61	55	66	59	60						
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	64	69	69	62	69	69	61	69	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	61	55	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	63	69	67	60	69	63	57	68	61	55	64	58	60	62	56	58
			Exposed	69	69	69	69	69	69	69	69	66	69	69	64	69	69	62	69	66	60	69	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	68	75	75	68	75	69	64	74	65	61	73	62	58	72	60	56	69	57	54
			Exposed	75	75	75	75	75	75	75	75	72	75	75	69	75	72	66	75	69	64	75	66	62	75	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	65	71	68	62	67	64	60	64	62	57
			Exposed	79	79	79	79	79	79	79	79	78	79	79	75	79	79	72	79	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	62	72	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	72	72	71	72	72	68	72	72	65	72	71	63	72	69	61	72	66	59	72	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	59	61	55	46
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	65	72	71	63	72	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	72	72	67	72	72	64	72	70	62	72	67	60	72	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	68	63	76	64	60	75	61	57	71	59	55	67	56	60	64	54	58
			Exposed	77	77	74	77	76	70	77	73	66	77	69	64	77	66	62	77	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	74	78	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	62	56	64	64	59	64	64	59	64	64	57
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	61
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	63	71	64	60	71	61	57	71	59	55	68	56	53
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	85*	85*	75	74	74	72	73	73	68	72	71	65
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	81*	76	72	76	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	61	64	64	57	64	61	54	64	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	63	57	64	61	55	64	58	60	62	56	58
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	64	58	64	64	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
			Exposed	71	71	71	71	71	71	71	71	71	71	71	69	71	71	66	71	69	64	71	66	62	71	62	59	71	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	75	75	74	74	74	69	72	72	65	71	68	62	67	64	60
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	76	81*	81*	75	81*	76	72	81*	76	69	76	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	59	67	63	56	67	60	54	64	58	59	62	56	57
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	61	67	66	59	67	64	57	67	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	66	60	68	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	68	68	67	68	68	64	68	68	62	68	67	60	68	64	58	68	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	68	63	73	64	60	72	61	57	71	59	55	67	56	60	64	54	58
			Exposed	74	74	74	74	74	70	74	73	66	74	69	64	74	66	62	74	64	60	74	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	77	77	77	74	75	75	68	74	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	78	78	78	78	78	76	78	78	72	78	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	61
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	57
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	72*	73*	73*	68
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	67	73*	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	59	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	56	57	59	61	55	57	59	54	56	49
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	58
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	57
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	62	67	67	62	59	67	59	56	67	57	53	64	54	58	62	59	56	59	57
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	69	72*	72*	65	68	68	62	66	64	60	64	62	57
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	69	74*	73*	66	72*	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	56	63	63	60	54	63	58	59	62	56	57			
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	59	63	63	57	63	60	54	63	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	54	63	63	57	63	60	54	62	57	59	61	55	55
			Exposed	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	62	56	63	63	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	63	70	64	60	69	61	57	67	59	55	66	56	60	64	54	58			
			Exposed	70	70	70	70	70	70	70	70	66	70	69	64	70	66	62	70	64	60	70	62	58	70	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	80*	80*	80*	80*	75	79*	79*	74	73	73	68	72	70	64	69	66	61	65	63	58	63	60	56	60	58	54
			Exposed	81*	81*	80*	81*	81*	76	81*	80*	72	81*	76	69	76	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

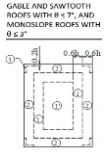
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

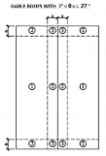
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

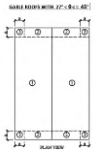
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

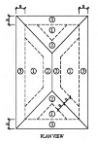












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

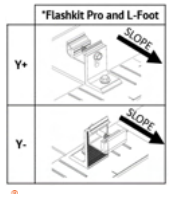
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59			
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59			
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	59	55	63	56	53
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	69*	69*	68*	68*	68*	67*	67*	65*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	67*	71*	70*	64*	69*	66*	61	66*	63	58	63	61	56
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	60
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57	57	61	55	57	59	59
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	57	57	60	57	56	57	58	
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	55	57	57	60	55	56	58	59	54	56	49	
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	60	56	62	57	54			
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	62	59	63	59	56	63	57	53	63	54	58	62	59	56	59	57	54			
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	69*	69*	69*	67*	67*	65*	65*	65*	62	66*	64*	60	64*	62	57
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	70*	68*	62	67*	64*	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	60	54	60	58	59	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	57	59	60	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	59	59	55	57	58	60	55
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	60	55	60	57	59	57	59	54	55	57	52	60	55	46	58	52	41				
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	64	60	66	61	57	65	59	55	64	56	60	62	54	58
			Exposed	67	67	67	67	67	67	67	67	66	67	67	64	67	66	62	67	64	60	67	62	58	67	59	55	67	56	60	63	53	57	61	58	55	58	56	60	63	54	49
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	72*	72*	72*	73*	73*	68	72*	71*	64	67	66	61	65	63	58	63	60	56	60	58	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	69	74*	73*	66	73*	70	64	71*	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59	54	54	57
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	61*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	60	64*	61*	57	64*	59	55	64*	56	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	67*	67*	66*	64*	64*	64*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	64*	67*	66*	61*	65*	63*	58*	63*	61*	56
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	61	55	54	59	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	58
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	60	55	54	58	59	54	56	49
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	62*	58	63*	60	56	62*	57	54
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	62*	59	64*	59	56	64*	57	53	64*	54	58	62*	59	56	59	57	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	65*	65*	65*	63*	63*	62*	62*	62*	60*	61*	61*	57
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	62*	66*	64*	59*	63*	61*	56	60*	58*	54	58*	56	59	56	54	57
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	56	57	60	54	56	58	52	61	55	46
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	59	57	55	56	60	55
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	55	57	57	59	57	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	62	59	55	61	56	60	60	54	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	62	63	62	58	63	59	55	63	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	68*	68*	68*	66*	66*	64*	65*	65*	61	65*	63	58	62	60	56	60	58	54
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	71*	70*	64*	70*	67*	62	66*	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

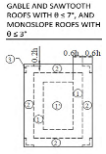
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

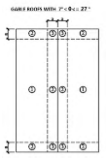
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

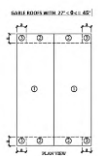
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

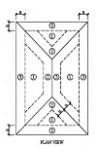












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

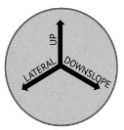
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

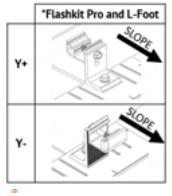
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	86	86	76	86	83	73	86	79	70	86	76	67	83	73	65	80	71	63	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	86	86	86	86	86	84	86	86	81	86	86	77	86	84	74	86	81	71	86	78	69	83	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	86	84	74	86	80	71	86	76	68	84	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	84	77	87	81	75	87	75	70	86	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	86	79	87	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	87	87	85	87	87	81	87	85	78	87	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	85	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	66	82	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	82	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	87	87	82	87	85	78	87	81	75	87	78	72	87	75	69	87	72	67	84	69	64	79	65	60	74	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	87	74	69	87	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	77	86	80	74	83	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	86	80	73	82	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	86	82	73	86	79	69	86	75	67	82	73	64	79	70	62	76	67	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	79	70	62	76	67	59	72	64	57	70	62	55	67	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	86	79	70	86	76	67	83	72	64	79	70	62	76	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	76	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	87	82	76	87	78	73	87	75	70	87	72	67	84	69	64	81	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	84	69	64	80	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	87	87	81	87	84	77	86	81	74	83	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
10	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	81	81	76	81	81	73	81	79	70	81	76	67	81	73	65	80	71	63	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	71	81	78	69	81	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	81	81	74	81	80	71	81	76	68	81	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	84	84	77	84	81	75	84	75	70	84	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	79	86	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	86	86	85	86	86	81	86	85	78	86	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	81	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	81	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	66	81	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	81	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	84	84	82	84	84	78	84	81	75	84	78	72	84	75	69	84	72	67	84	69	64	79	65	60	74	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	84	74	69	84	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	86	86	86	86	86	83	86	86	80	86	83	77	86	80	74	83	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	86	80	73	82	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	81	81	73	81	79	69	81	75	67	81	73	64	79	70	62	76	67	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	79	70	62	76	67	59	72	64	57	70	62	55	67	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	81	79	70	81	76	67	81	72	64	79	70	62	76	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	76	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	85	82	76	85	78	73	85	75	70	85	72	67	84	69	64	81	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	84	69	64	80	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	87	87	81	87	84	77	86	81	74	83	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	63	73	67	59	72	64	56	69	61	54	66	58	51
			Exposed	73	73	73	73	73	73	73	73	70	73	73	67	73	73	65	73	71	63	73	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	73	73	64	73	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	73	73	73	73	73	71	73	73	68	73	73	65	73	70	62	73	68	60	73	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	75	78	75	70	78	71	65	78	67	62	77	63	59	73	60	56	70	57	53
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	65	78	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	81	81	81	81	81	78	81	81	78	81	81	75	81	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	70	62	73	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	73	73	66	73	72	63	73	69	61	73	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	69	62	73	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	73	72	64	73	69	61	73	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	67	78	69	64	78	65	60	74	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	78	74	69	78	71	66	78	68	63	78	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	80	81	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	81	80	73	81	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	73	73	73	73	73	67	73	73	64	73	70	62	73	67	60	73	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42			
			Exposed	73	70	62	73	67	59	72	64	57	70	62	55	67	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	73	73	70	73	73	67	73	72	64	73	70	62	73	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42			
			Exposed	73	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	76	79	78	73	79	75	70	79	72	67	79	69	64	79	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	79	69	64	79	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

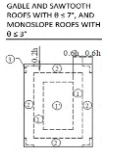
* Cells with an astrisks indicates that the L-Foot must be oriented in the Y- direction as indicated in the image below.

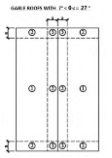
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

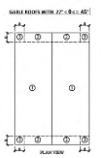
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

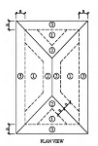












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

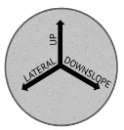
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

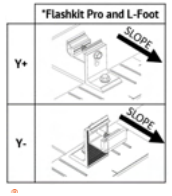
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	56	65	61	54	65	58	51			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	60	65	64	57	65	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	61	54	66	57	66	61	54	66	58	52	63	55	43
			Exposed	66	66	66	66	66	66	66	66	66	66	66	65	66	66	62	66	66	60	66	65	58	66	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	71	65	73	67	62	73	63	59	73	60	56	70	57	53			
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	65	73	68	63	73	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	70	76	72	66	72	68	63	69	65	60	65	62	57			
			Exposed	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	58	65	65	59	52	63	56	43	60	53	38	57	49	34		
			Exposed	65	65	65	65	65	63	65	65	61	65	65	58	65	64	56	65	62	54	65	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	63	56	66	59	52	63	56	44	60	53	38	57	47	34	54	40	45
			Exposed	66	66	64	66	66	61	66	66	58	66	63	56	66	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	65	60	73	61	57	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	73	73	69	73	71	66	73	68	63	73	65	61	73	63	58	73	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	76	76	73	76	76	70	76	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	74	69	64	74	66	61	74	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	77	71	78	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	78	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	56	63	61	54	63	58	51
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	57	63	61	53	63	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	54	63	58	52	63	55	43
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	63	54	63	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	62	68	63	59	68	60	56	68	57	53
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	63	59	68	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	72	72	66	70	68	63	73	73	70	65	62	57
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	58	63	63	59	52	63	56	43	60	53	38	57	49	34		
			Exposed	63	63	63	63	63	63	63	63	61	63	63	58	63	63	56	63	62	54	63	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	54	63	58	52	63	55	43
			Exposed	63	63	63	63	63	61	63	63	58	63	63	56	63	62	54	63	63	59	63	63	57	63	63	56	63	58	51	63	56	44	60	53	38	57	47	34	54	40	45
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	60	68	61	57	68	63	53	66	55	48	63	52	40	60	44	36
			Exposed	68	68	68	68	68	66	68	68	63	68	65	61	68	63	58	68	61	56	68	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	68	71	70	64	69	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	73	73	73	73	73	70	73	73	67	73	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42		
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	67	70	69	64	70	67	62	70	64	60	70	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	70	69	64	70	66	61	70	63	59	70	61	56	70	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	72	66	73	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36	
			Exposed	74	74	68	74	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	51			
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	41	58	52	36	56	46	48					
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	57	59	59	54	59	58	52	58	55	43
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	54	59	58	51	59	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	60	56	63	57	53
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	55	63	56	52	63	53	48	59	41	34
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	66	69*	68*	63	67*	64	60	63	62	57
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	68*	63	68*	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	43	58	53	38	57	49	34
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	53	58	56	44	58	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	59	52	58	56	44	57	53	38	56	47	34	54	40	45
			Exposed	59	59	59	59	59	59	59	59	58	59	59	56	59	59	54	59	59	52	59	57	47	59	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	57	53	62	55	48	61	52	40	59	44	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	61	63	63	58	63	61	56	63	58	54	63	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	70*	70*	64	67*	65	60	63	62	57	61	59	54	59	56	52	57	54	44
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	69*	65	69*	68*	62	69*	65	60	67*	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	55	61	61	54	61	55	41	59	52	36	56	45	48	53	40	42
			Exposed	61	61	61	61	61	59	61	61	57	61	61	55	61	60	53	61	57	49	61	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	55	61	58	52	60	55	42	59	52	36	56	43	48	53	38	42	48	33	38			
			Exposed	61	61	59	61	61	57	61	61	54	61	59	52	61	57	47	61	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	64	60	66	60	56	65	57	53	63	54	45	62	49	38	59	41	34	56	36	45
			Exposed	66	66	64	66	66	61	66	63	59	66	61	56	66	58	54	66	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	74*	75*	75*	71	75*	75*	68	74*	70	66	69	69	64	67	65	60	64	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	75*	75*	68	75*	71	65	71	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

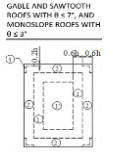
* Cells with an astriks indicates that the L-Foot must be oriented in the Y- direction as indicated in the image below.

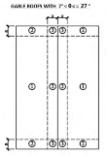
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

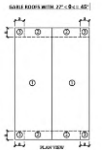
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

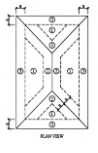












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

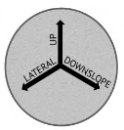
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

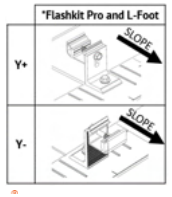
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	49	54	54	41	54	52	36	54	46	48
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	54	43
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	41	54	52	36	54	43	48	53	38	43
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	60*	55	62*	56	52	62*	53	44
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	60*	55	62*	56	52	62*	53	44	62*	49	38	59	41	34
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	63*	61*	61*	60*	60*	60*	57*	60*	57*	53
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	59*	64*	61*	56	61*	58*	53	58*	55	48	55	53	41
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	43	54	54	53	38	54	34
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	44	54	53	37	54	47	49	54	40	43	50	35	38	43	47	33	50	30	36
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	44	54	53	38	54	53	38	53	47	34	52	40	45	50	34	40
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	47	54	53	38	54	46	33	53	38	43	48	34	38	40	45	33	36	40	30	36
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	61*	57	62*	57	53	61*	55	48	57	52	40	56	44	36	51	43	36
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	62*	62*	58	62*	61*	56	62*	58	54	62*	55	49	62*	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	63*	62*	62*	60*	60*	60*	57*	58*	58*	54	59*	56	52	57*	54	44	52	49	34
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	60*	65*	63*	58*	63*	59*	54	59*	56	51	56	53	41	53	47	36	47	40	48	40	36	43	30	36
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	50	56	55	41	56	52	36	56	45	48	53	40	42	50	34	40
			Exposed	56	56	56	56	56	56	56	56	56	55	56	56	53	56	56	49	56	56	43	56	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28	30	36
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	52	56	55	42	55	52	36	54	43	48	53	38	42	48	33	38	30	36
			Exposed	57	57	57	57	57	57	57	57	54	57	57	52	57	57	47	57	55	41	57	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	60	56	61	57	53	60	54	45	59	49	38	57	41	34	56	36	45
			Exposed	62	62	62	62	62	62	59	62	61	56	62	58	54	62	56	52	62	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	30	30	36
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	66*	66*	65*	65*	64*	66*	65*	60	64*	61	56	59	58	53	57	55	48	55	53	41	53	47	36
			Exposed	67*	67*	67*	67*	67*	65*	67*	67*	63*	67*	66*	60	67*	63*	58	65*	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	41	50	50	36	50	46	48	50	30	36
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	30	36
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	36	50	43	48	50	38	43	50	30	36
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	36	45
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	55*	56*	56*	52*	56*	53*	44	56*	49	38	56*	41	34
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	57*	57*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	59*	58*	53*	58*	55*	48	55*	53*	41
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	38	50	49	34	50	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	37	50	47	49	50	40	43	50	35	38	43	47	33
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	38	50	46	33	50	38	43	48	34	38	40	45	30
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	54*	56*	55*	49	56*	52*	40	56*	42	34	56*	36	45	54*	48	36
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	56*	52*	56*	53*	48	56*	52*	40	53*	43	36
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	57*	57*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	55*	59*	56*	51*	56*	53*	41	53*	47	36	47	40	43
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	42
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	43	52	52	36	52	44	47	52	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	42	52	52	36	52	43	48	51	38	42	48	33	38	40	45	30
			Exposed	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	41	53	53	38	53	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25	36	25
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	60*	56	60*	57	53	59*	54	45	58*	49	38	55	41	34	53	36	45
			Exposed	61*	61*	61*	61*	61*	61*	59*	61*	61*	56	61*	58*	54	61*	56	52	61*	54	48	61*	50	39	59*	40	33	55	35	43	53	46	38	47	40	34	40	36	30	36	36
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	62*	60*	60*	60*	59*	59*	56*	57*	57*	53	57*	55*	48	55*	53	41	52	47	36
			Exposed	64*	64*	64*	64*	64*	64*	63*	64*	64*	60*	64*	63*	58*	63*	61*	56*	62*	59*	54	58*	55*	49	55*	52	40	52	44	35	42	38	46	37	34	40	33	45	36	36	36
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	47	47	46	48
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	36	47	47	43	47	46	48
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	49*	38	52*	41	34
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	41
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	38	47	47	34	47	34
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	47	47	47	47	47	47	49	47	40	43	47	35	38	43	47	33
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	47	34	47	40	45
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	43	47	47	34	38	40	45	33	36	30
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	36
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	52*	40	52*	42	34	52*	36	45
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41	52*	47*	36	47*	40	48	40	36	43
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	36	49	44	47	49	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	50	36	49	43	48	48	38	42	47	33	38	40	45	30
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	38	50	50	44	48	50	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	54*	48	55*	50	39	55*	40	33	55*	35	43	53*	46	38	47	40	34	40	36	30
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	56*	56*	55*	55*	53*	53*	53*	49*	52*	52*	41	50*	47	36
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	54*	58*	55*	49*	55*	52*	40	52*	44	35	42	38	46	37	34	40	33	45	36

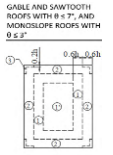
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

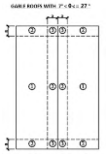
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

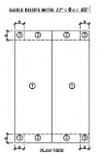
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

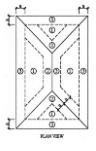












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

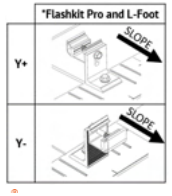
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	36	44	44	48
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	36	45	43	48	45	38	43
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	38	49*	41	34
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	44	44	44	34
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	37	44	44	49	44	40	43	44	35	38	43	47	33
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	38	45	45	34	45	40	45	45	40	36
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33	45	38	43	45	34	38	40	45	33	36	40	90
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	40	49*	42*	34	49*	36	45	49*	46	40	49*	43	36
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	40	49*	42*	34	49*	36	45	49*	46	40	49*	43	36
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	36	47*	47*	40*	48	40*	36	43
	D	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	36	47	45	48	47	40	42
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	36	47	44	47	47	38	41	47	33	36	40	44	51	36	39	28
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	36	47	43	48	46	38	42	46	33	38
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	38	47	44	48	47	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45	51*	49*	38	50*	41	34	49*	36	45
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	40	52*	35	43	51*	46	38	47*	40	34	40	36	90
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	51*	48*	50*	50*	41	49*	47*	36
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	44*	35	42	38	46	37	34	40	33	45	36
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	42	42	42	36	42	42	48
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41	45*	45*	36	45*	42	48	45*	38	43
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	38*	45*	41*	34
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	49	42	40	43	42	35	38	42	47	33
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42	45*	45*	38	45*	45*	34	45*	40	45
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	45*	33	45*	38	43	45*	34	38	40	45	33	36	40	90
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	44*	36	45*	44*	36
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	42*	34	45*	45*	36	45*	42*	34	42*	42*	42*
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*	42*	42*	36*	42*	40*	48	40*	36*	43
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	44	44	44	36	44	44	48	44	40	42
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	36	44	44	47	44	38	41	44	33	36	40	44	51	36	39	28
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	36	45	43	48	45	38	42	44	33	38
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	38	45	44	48	45	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	45*	49*	49*	45*	49*	49*	38	48*	41	34	47*	36	45
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	39	49*	49*	40	33	49*	35	43	49*	46	38	47*	40	34	40	36	90
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	36
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	40*	47*	44*	35	42*	38	46	37	34	40	33	45	36

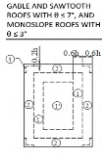
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

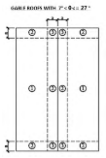
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

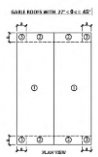
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

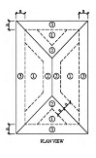












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

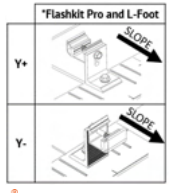
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	92	102	102	88	102	98	85	102	91	79	98	85	73	92	79	69	86	75	65	81	71	62	77	68	60
			Exposed	102	102	92	102	101	87	102	96	83	102	92	79	102	88	76	97	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	95	81	102	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	102	102	89	102	98	84	102	92	80	102	88	76	99	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	82	103	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	103	103	99	103	103	93	103	97	88	103	92	83	103	87	79	103	83	76	101	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	97	103	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	103	103	103	103	103	100	103	103	95	103	99	90	103	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	102	102	95	102	102	90	102	99	85	102	94	81	102	90	78	100	86	75	96	83	72	89	77	67	83	72	63	78	68	60	73	65	58	72	62	55	66	59	53
			Exposed	102	90	78	99	85	74	94	81	71	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	102	102	91	102	101	86	102	95	82	102	90	78	102	86	74	97	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	102	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	103	103	102	103	103	96	103	100	90	103	95	86	103	90	82	103	86	78	103	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	103	90	81	103	103	85	77	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	103	103	103	103	103	103	103	103	97	103	102	93	103	97	88	103	93	84	98	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	103	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	102	100	87	102	95	82	102	91	78	100	87	75	96	83	72	92	80	69	88	77	66	82	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	96	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	102	97	83	102	91	79	102	87	75	97	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	103	102	92	103	96	87	103	91	82	103	86	78	103	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	103	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	59	55	53	56	53	58	54			
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	85	95	91	79	95	85	73	92	79	69	86	75	65	81	71	62	77	68	60
			Exposed	95	95	92	95	95	87	95	95	83	95	92	79	95	88	76	95	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	95	81	96	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	96	96	89	96	96	84	96	92	80	96	88	76	96	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	82	100	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	100	100	99	100	100	93	100	97	88	100	92	83	100	87	79	100	83	76	100	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	97	102	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	102	102	102	102	102	100	102	102	95	102	99	90	102	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	81	95	90	78	95	86	75	95	83	72	89	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	95	90	78	95	85	74	94	81	71	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	96	96	91	96	96	86	96	95	82	96	90	78	96	86	74	96	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	96	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	100	100	100	100	96	100	100	90	100	95	86	100	90	82	100	86	78	100	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54	
			Exposed	100	90	81	100	85	77	100	80	73	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	102	102	102	102	102	102	102	102	97	102	102	93	102	97	88	102	93	84	98	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	102	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	95	95	87	95	95	82	95	91	78	95	87	75	95	83	72	92	80	69	88	77	66	82	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	95	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	96	96	83	96	91	79	96	87	75	96	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	101	101	92	101	96	87	101	91	82	101	86	78	101	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	101	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	59	55	53	56	53	58	54			
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	79	86	85	73	86	79	69	86	75	65	81	71	62	77	68	60
			Exposed	86	86	86	86	86	86	86	86	86	86	86	79	86	86	76	86	84	73	86	81	70	86	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	81	87	87	75	87	80	70	87	75	65	82	70	62	77	66	60	73	64	58
			Exposed	87	87	87	87	87	84	87	87	80	87	87	76	87	84	72	87	80	69	87	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	82	92	84	76	92	78	71	92	73	67	87	69	64	83	65	61
			Exposed	92	92	92	92	92	92	92	92	88	92	92	83	92	87	79	92	83	76	92	80	73	92	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	80	75	71	64	70	67	61	66	64	59	63	61	57			
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	86	75	86	83	72	86	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	86	86	78	86	85	74	86	81	71	86	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	87	87	87	87	87	86	87	87	82	87	87	78	87	86	74	87	82	71	87	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	87	86	74	87	81	70	87	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	86	92	90	82	92	86	78	92	82	75	92	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	92	90	81	92	85	77	92	80	73	92	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	93	96	96	88	96	93	84	96	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	96	96	88	96	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	75	86	83	72	86	80	69	86	77	66	82	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	86	83	72	86	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	87	87	83	87	87	79	87	87	75	87	82	71	87	79	68	87	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	87	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	94	94	92	94	94	87	94	91	82	94	86	78	94	82	75	94	78	71	94	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	94	82	74	94	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	97	97	97	97	97	97	97	97	89	97	94	85	97	89	81	93	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

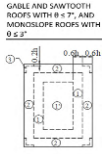
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

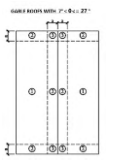
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

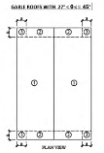
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

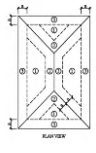












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

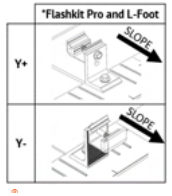
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	75	80	80	71	62	77	68	60
			Exposed	80	80	80	80	80	80	80	80	80	80	80	79	80	80	76	80	80	73	80	80	70	80	75	65	80	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	70	62	77	66	60	73	64	58
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	72	80	80	69	80	76	67	80	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	84	76	87	78	71	87	73	67	87	69	64	83	65	61
			Exposed	87	87	87	87	87	87	87	87	87	87	87	83	87	87	79	87	83	76	87	80	73	87	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	85	77	86	80	73	81	76	69	76	72	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57			
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	77	67	80	72	80	77	67	80	72	63	78	68	60	73	65	58	70	62	53
			Exposed	80	80	78	80	80	74	80	80	71	80	78	67	80	75	65	80	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	74	80	80	71	80	79	68	80	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	80	80	74	80	80	70	80	77	67	80	73	64	80	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	82	87	87	82	87	86	78	87	82	75	87	75	69	87	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	87	87	81	87	85	77	87	80	73	87	76	70	87	73	67	87	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	81	89	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	90	90	88	90	90	83	90	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	88	88	88	88	88	87	88	88	82	88	86	78	88	82	75	88	78	71	88	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	88	82	74	88	77	71	88	73	67	88	70	64	85	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	86	77	89	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	92	89	81	92	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	65	78	71	62	77	68	60
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	75	65	78	71	62	76	66	59	72	63	57	68	61	54	65	58	60			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	70	62	77	66	60	73	64	58
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	72	78	78	69	78	76	67	78	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	78	71	82	73	67	82	69	64	82	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	76	82	80	73	82	73	67	82	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	85	77	84	80	73	81	76	69	76	72	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57			
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	78	78	78	78	78	74	78	78	71	78	78	67	78	75	65	78	72	63	78	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	71	78	78	68	78	73	64	78	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	78	78	74	78	78	70	78	77	67	78	73	64	78	70	62	78	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	75	82	78	69	82	73	67	82	69	62	77	66	60	74	60	56
			Exposed	82	82	81	82	82	77	82	80	73	82	76	70	82	73	67	82	70	64	82	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	86	81	85	83	75	83	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	86	86	86	86	86	83	86	86	79	86	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	77	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	84	84	84	84	84	84	84	84	82	84	84	78	84	82	75	84	78	71	84	75	68	84	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	84	82	74	84	77	71	84	73	67	84	70	64	84	67	62	81	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	88	88	88	88	88	88	88	88	88	88	88	85	88	88	81	87	86	77	86	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	88	88	81	88	85	77	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	65	74	71	62	74	68	60
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	62	74	66	59	72	63	57	68	61	54	65	58	60			
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	70	62	75	66	60	73	64	58
			Exposed	75	75	75	75	75	75	75	75	75	75	75	72	75	75	69	75	75	67	75	71	63	75	66	59	71	63	57	67	60	54	64	57	60	61	55	57	59	53	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	71	78	73	67	78	69	64	78	65	61
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	64	78	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	77	81	80	73	79	76	69	76	72	65
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	79	83	81	73	80	75	71	64	70	67	61	66	64	59	63	61	57					
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	67	74	72	63	74	68	60	73	65	58	70	62	55	66	59	53
			Exposed	74	74	74	74	74	74	74	74	71	74	74	67	74	74	65	74	72	63	74	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	71	75	75	68	75	73	64	75	68	61	73	64	58	69	61	55	65	59	53	62	56	58
			Exposed	75	75	74	75	75	70	75	75	67	75	73	64	75	70	62	75	67	60	75	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	69	78	70	64	78	66	61	77	63	59	74	60	56
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	64	78	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	75	80	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	66	76	71	63	76	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	76	76	76	76	76	75	76	76	71	76	76	68	76	75	65	76	72	63	76	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55			
			Exposed	76	76	68	76	74	65	76	71	63	76	67	60	75	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	80	80	80	80	80	80	80	80	78	80	80	75	80	78	71	80	75	68	80	69	64	80	65	61	76	62	58	72	59	55	68	57	53	65	54	59			
			Exposed	80	80	74	80	77	71	80	73	67	80	70	64	80	67	62	80	64	60	78	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	77	83	82	74	81	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	84	84	81	84	84	77	84	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

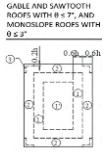
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

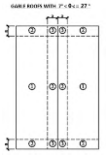
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

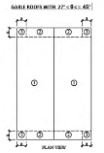
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

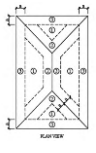












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

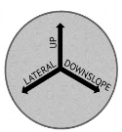
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

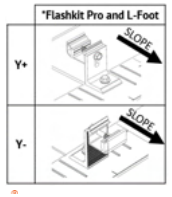
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	68	60
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	57	68	61	54	65	58	60
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	62	70	66	60	70	64	58
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70	70	67	70	70	63	70	66	59	70	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	73	67	75	69	64	75	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	73	67	75	68	63	75	64	60	75	61	58	72	59	55	68	57	53
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	65
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	60	69	65	58
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	65	69	69	63	69	69	61	69	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	62	56	53
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	64	70	68	61	70	64	58	69	61	55	65	59	53	62	56	58
			Exposed	70	70	70	70	70	70	70	70	67	70	70	64	70	70	62	70	67	60	70	65	59	69	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	64	75	66	61	74	63	59	73	60	56	70	58	54
			Exposed	75	75	75	75	75	75	75	75	73	75	75	70	75	73	67	75	70	64	75	70	62	75	75	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	72	65	72	68	62	68	65	60	65	62	58
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	80	80	72	80	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	71	63	73	67	59	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	73	73	72	73	73	68	73	73	65	73	72	63	73	69	61	73	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	71	73	73	68	73	73	65	73	72	63	73	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	73	73	68	73	73	65	73	71	63	73	67	60	73	65	59	71	63	57	69	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	71	77	75	68	77	69	64	76	65	61	75	62	58	72	59	55	68	57	53	65	54	59
			Exposed	77	77	74	77	77	71	77	73	67	77	70	64	77	67	62	77	64	60	77	63	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77	80	80	74	78	76	69	75	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81	81	81	81	81	81	81	81	73	81	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	63	57	65	61	54	65	60
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60	65	64	58
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	59	65	63	57	65	60	54	64	57	60	61	55	57
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	64	72	65	61
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	68	63	72	64	60	72	61	58	72	59	55	68	57	53
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	75	75	73	74	74	69	73	72	65			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	62	55	65	59	53
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	61	65	65	58	65	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	61	65	64	58	65	61	55	64	59	53	62	56	58
			Exposed	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	59	65	61	55	65	58	53	62	55	58	59	53	55	56	58	53	54	56	50		
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	66	72	69	62	72	63	59	72	60	56	69	57	53
			Exposed	72	72	72	72	72	72	72	72	70	72	72	67	72	70	64	72	67	62	72	63	59	72	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	75	74	74	70	73	72	65	72	68	62	68	65	60	65	62	58	
			Exposed	77	77	77	77	77	77	77	77	76	77	77	72	77	77	69	77	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	63	68	64	57	68	61	54	65	58	60	62	56	57			
			Exposed	68	68	68	68	68	68	68	68	65	68	68	63	68	68	61	68	67	59	68	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	68	57	67	60	54	64	57	60	61	55	57	59	53	55			
			Exposed	68	68	68	68	68	65	68	68	63	68	67	60	68	65	59	68	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	69	64	74	65	61	73	62	58	72	59	55	68	57	53	65	54	59
			Exposed	74	74	74	74	74	71	74	74	70	74	74	67	74	74	67	74	74	64	74	74	63	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	77	77	77	74	76	76	69	74	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	79	79	79	79	79	77	79	79	73	79	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61			
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	54	61	58	60
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	61	61	59	61	55	57
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	68	68	68	64	68	68	58	68	59	55	68	57	53
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	74*	75*	75*	73*	74*	74*	69
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	75*	74*	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	55	61	59	53
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	60	61	56	57	60	54	55	57	59	53
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	56
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	55	61	59	53	60	56	58
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	62	68	63	59	68	60	56	68	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72	75*	75*	69	74*	74*	67	73*	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72	75*	75*	69	74*	74*	67	73*	68	63	67	64	60	64	61	57	61	59	54	58	56	60			
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	57	64	64	61	54	64	58	60	62	56	57		
			Exposed	64	64	64	64	64	64	64	64	64	63	64	64	61	64	64	59	64	64	57	64	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47		
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	64	60	64	64	57	60	61	55	57	59	53	55		
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	64	60	64	64	60	64	64	57	60	61	55	57	59	53
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	69	64	71	65	61	70	62	58	68	59	55	67	57	53	65	54	59
			Exposed	71	71	71	71	71	71	71	71	67	71	70	64	71	67	62	71	64	60	71	63	59	71	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	83*	83*	76	82*	82*	74	74	74	69	72	71	65	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81*	81*	81*	81*	81*	77	81*	81*	73	81*	77	70	76	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

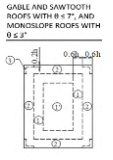
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

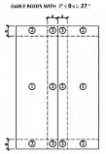
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

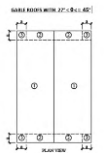
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

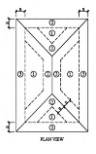












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

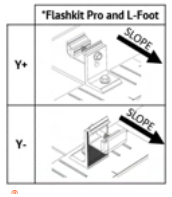
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60			
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	57	60	58	55	57
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	61	58	64	59	55	64	57	53
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	70*	70*	69*	69*	69*	68*	68*	65
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	71*	64	70*	67*	61	66*	64	59	63	61	57
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	56	57	57	54	55	57	59	53
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	53	58	56	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	53	58	55	58	58	53	55	56	58	53	54	56	50
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	63	59	64	60	56	63	58	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	63	59	64	60	56	64	57	53	64	54	59	62	60	56	60	58	54
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	68*	68*	65	69*	68*	62	67*	65	60	63	62	58	
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	69*	72*	72*	67*	71*	69*	63	67*	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	60	60	56	57	
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	59	60	60	57	60	60	54	60	58	59	60	55	57	59	53	54	56	58	52
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	60	54	61	57	60	60	55	57	59	53	55
			Exposed	61	61	61	61	61	61	61	61	61	61	61	60	61	61	59	61	61	57	61	61	55	61	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	65	59	55	64	57	53	63	54	59
			Exposed	67	67	67	67	67	67	67	67	67	64	67	67	62	67	64	60	67	63	59	67	59	56	67	56	53	64	54	58	61	59	55	59	56	53	56	54	59	54	50
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	69	72*	70	65	68	67	62	66	64	59	63	61	56	61	59	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	70	74*	74*	67	74*	71	64	72*	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	60	55	55	57
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	64*	65*	65*	61
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	60	65*	61	58	65*	59	55	65*	57	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	66*	66*	65*	65*	65*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	67*	61*	66*	64*	59	63*	61*	57
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	54	55	54	59	53
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58	55	53	55	55	58	53	54	56	50
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59	61	60	56	60	58	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	65*	65*	65*	64*	64*	63*	63*	63*	60*	61*	61*	58
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	63*	67*	64*	60*	64*	61*	57	61*	59	54	58	56	60	56	54	58
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	57	57	53	54	56	58	52	54	56	47
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	57	60	58	55	57	57	53	55
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	62	58	63	59	55	62	57	53	61	54	59
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	63	59	64	59	56	64	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	67*	67*	65	68*	67*	62	66*	64	59	62	61	56	61	59	54
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	72*	72*	67*	72*	71*	64	71*	68*	62	67*	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

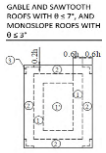
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

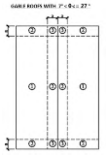
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

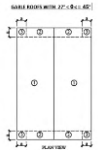
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

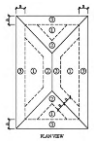












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

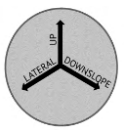
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

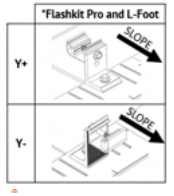
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	76	81	81	73	81	80	71	81	77	68	81	72	64	77	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	81	81	73	81	79	70	81	76	67	81	73	64	80	70	62	77	68	60	74	65	58	69	61	54	65	58	51	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	74	81	81	71	81	78	69	81	75	66	80	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	81	81	71	81	77	68	81	74	65	81	71	63	78	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	72	67	82	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	82	82	78	82	80	74	82	76	71	82	73	68	82	70	65	82	68	63	79	65	60	74	61	57	70	57	53	66	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	82	76	82	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	82	82	82	82	82	78	82	82	75	82	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	81	81	75	81	81	81	72	81	78	69	81	75	66	81	72	63	79	69	61	76	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	42
			Exposed	81	72	63	78	68	61	74	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	79	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	82	82	79	82	82	76	82	78	72	82	75	69	82	72	67	82	69	64	81	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	82	72	66	82	68	63	80	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	82	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	81	77	68	81	73	65	80	70	62	77	67	59	73	64	57	71	62	55	68	60	53	64	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	73	64	57	70	61	55	67	59	52	64	56	47	62	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	82	80	73	82	76	70	82	72	67	82	69	64	81	67	62	78	64	60	75	62	57	70	58	54	66	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	81	67	62	77	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	42	30
		27-45	Interior	82	82	78	82	81	74	82	77	71	80	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	76	76	73	76	76	70	76	76	67	76	73	64	76	70	62	76	68	60	74	65	58	69	61	54	65	58	51	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	76	76	71	76	76	68	76	74	65	76	71	63	76	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	72	67	79	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	79	79	78	79	79	74	79	76	71	79	73	68	79	70	65	79	68	63	79	65	60	74	61	57	70	57	53	66	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	63	76	69	61	76	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	76	72	63	76	68	61	74	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	76	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	79	79	79	76	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	79	72	66	79	68	63	79	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	81	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	76	76	73	76	76	68	76	74	65	76	71	63	76	68	60	75	65	58	72	63	56	67	59	52	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	73	64	57	70	61	55	67	59	52	64	56	47	62	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	82	80	73	82	76	70	82	72	67	82	69	64	81	67	62	78	64	60	75	62	57	70	58	54	66	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	81	67	62	77	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	42	30
		27-45	Interior	82	82	78	82	81	74	82	77	71	80	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	60	67	64	57	67	61	54	66	58	52	63	56	43
			Exposed	67	67	67	67	67	67	67	67	67	67	67	64	67	67	62	67	67	60	67	65	58	67	61	54	65	58	51	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	58	67	62	55	67	59	52	63	56	44	60	53	36
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	60	67	65	58	67	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	72	67	73	68	63	73	64	59	73	61	56	70	58	54	67	55	50
			Exposed	73	73	73	73	73	71	73	73	68	73	70	65	73	68	63	73	65	60	73	61	57	70	57	53	66	54	47	62	51	37	59	41	32	57	34	43	54	46	38
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	71	76	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34	
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	66	67	67	63	67	67	61	67	67	59	67	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	67	67	63	67	67	61	67	66	58	67	63	56	67	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	61	67	67	59	67	64	57	67	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	67	67	61	67	66	59	67	63	56	67	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	73	72	66	73	68	63	73	66	61	73	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	74	76	76	76	71	76	74	68	76	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	76	76	71	76	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	61	67	67	59	67	64	57	67	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	67	67	59	67	64	56	67	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	61	67	67	59	67	64	57	67	60	54	64	57	47	61	53	37	58	49	48	55	39	42	52	33	38
			Exposed	67	67	61	67	66	59	67	63	56	67	61	54	66	58	52	64	56	46	62	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	73	72	66	73	68	63	73	66	61	73	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	74	62	57	70	58	54	66	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	74	67	62	74	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	42	30
		27-45	Interior	77	77	77	77	77	77	77	77	71	77	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30

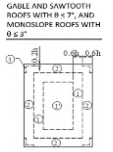
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

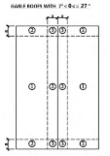
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

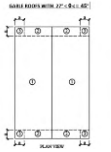
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

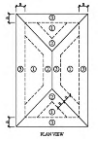












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

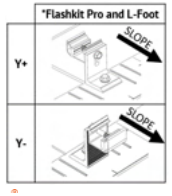
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	52	60	56	43
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	54	60	58	51	60	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	59	52	60	56	44	60	53	36			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	52	60	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	56	67	63	56	67	58	54	67	55	50			
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	63	67	65	60	67	61	57	67	57	53	66	54	47	62	51	37	59	41	32	57	34	43			
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	63	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34			
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	59	52	60	56	44	60	53	36	57	49	48	55	41	42
			Exposed	60	60	60	60	60	60	60	60	58	60	60	56	60	60	54	60	59	52	60	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	47	60	53	37	58	49	48	55	39	42	52	33	38
			Exposed	60	60	60	60	60	59	60	60	56	60	60	54	60	58	52	60	56	46	60	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	58	67	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	67	67	66	67	67	63	67	66	61	67	63	58	67	60	56	67	58	54	67	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	72	71	66	71	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36			
			Exposed	72	72	71	72	72	68	72	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	64	69	67	62	69	64	60	69	62	57	69	58	54	66	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	69	67	62	69	64	59	69	61	57	69	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	68	73	71	66	73	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	73	71	66	73	68	63	70	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	52	58	56	43
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	51	58	55	41	58	52	34	56	45	45	54	38	40
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	45	54	38	36
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	61	56	62	58	54	62	55	50
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	61	57	62	57	53	62	54	47	62	51	37	59	41	32	57	34	43
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	63	70*	65	60	63	62	57
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67	69*	69*	64	69*	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	36	57	49	48	55	41	42
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	57	47	58	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	52	58	58	47	58	53	37	57	49	48	55	39	42
			Exposed	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	56	46	58	54	40	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	59	54	62	55	51	61	52	40	60	45	34	58	37	45
			Exposed	62	62	62	62	62	62	62	62	61	62	62	58	62	60	56	62	58	54	62	56	52	62	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	68*	69*	69*	66	68*	66	62	64	63	58	62	60	55	60	57	52	57	54	44	55	52	36
			Exposed	69*	69*	69*	69*	69*	68*	69*	69*	65	69*	68*	62	69*	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	58	64	54	48	62	52	37	59	41	32	56	34	43	54	46	38
			Exposed	64	64	62	64	64	59	64	61	57	64	58	54	64	56	52	64	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	69	75*	69	68	75*	69	66	69	69	63	67	67	61	65	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	75*	69	66	69	68	63	69	65	60	67	63	58	65	61	56	62	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	43			
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	41	53	52	34	53	45	45	53	38	40
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44	53	53	36			
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	57	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54	60*	55	50
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	57	60*	60*	54	60*	57	53	60*	54	43
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	61*	61*	60*	59*	59*	57*	58*	58*	55
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	62*	57*	62*	58*	54	59*	56*	50	56*	53	40	53	48	34
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	44	53	53	36	53	49	48	53	41	42
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	37	53	53	48	47	53	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	54	53	37	53	49	48	52	39	42	51	33	38
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	46	54	54	40	54	54	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	58	54	60*	55	51	57	52	40	56	45	34	55	37	45
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54	60*	56	52	60*	53	41	60*	44	33	57	35	43	54	46	38	52	40	34	43	36	30			
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	60*	60*	58*	58*	58*	55	58*	57*	52	56*	54	44	53	52	36
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	60*	63*	63*	58*	63*	61*	56*	60*	57*	52	57*	54	43	54	49	35	49	40	46	39	34	40	33	45	36			
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	52	56	56	52	56	56	42	56	52	34	56	45	45	53	40	35
			Exposed	56	56	56	56	56	56	56	56	54	56	56	52	56	56	47	56	55	41	56	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	45	55	53	42	56	52	34	56	45	45	53	40	49	47	35	40
			Exposed	56	56	56	56	56	55	56	56	52	56	56	47	56	54	39	56	52	34	56	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	58	54	60	54	48	58	52	37	57	41	32	56	34	43	54	46	38
			Exposed	60	60	60	60	60	59	60	60	57	60	58	54	60	56	52	60	54	47	60	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	65*	65*	65*	65*	65*	63*	65*	65*	60	65*	63*	58	65*	61	56	62*	58	54	60	57	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	64*	63*	63*	61	64*	62*	57	63*	59	54	57	56	50	55	53	40	53	47	34	48	39	45			

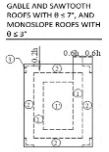
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

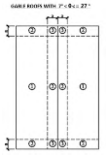
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

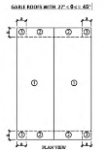
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

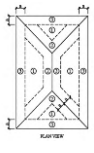












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

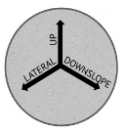
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

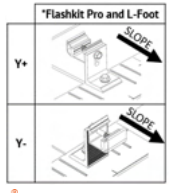
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	34	49	45	45	49	38	40
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	49	49	36
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	34	49	44	45	49	36	40	49	48	36
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	50
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	53*	55*	54*	47	55*	51*	37	55*	41	32	54*	34	43
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	56*	56*	55*	55*	55*	55*	55*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	55*	50*	56*	53*	40	53*	48*	34
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	36	49	49	48	49	41	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	37	49	48	47	49	39	41	49	33	36	42	44	51	36	39	28
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	49	49	49	48	49	39	42	48	49	38
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	40	49	49	32	49	38	41	49	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	51*	56*	52*	40	55*	45	34	54*	37	45
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	53*	41	55*	44	33	54*	35	43	54*	46	38	52*	40	34	54*	43	36	30
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	57*	55*	55*	55*	54*	54*	52*	52*	52*	44	51*	51*	36
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	52*	57*	54*	43	54*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	34	52	45	45	52	38	40	50	33	35
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	41	52	52	46	52	52	46	52	46	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	35	51	45	46	50	36	40	49	47	35
			Exposed	52	52	52	52	52	52	52	52	52	52	52	47	52	52	39	52	52	34	52	48	48	52	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	58*	54	48	57*	52	37	56*	41	32	53	34	43	51	46	38
			Exposed	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	59*	56*	52	59*	54	47	59*	52	40	59*	42	32	56*	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	58*	58*	57*	56*	56*	54*	55*	55*	50	55*	53*	40	53*	47	34	48	39	45
			Exposed	61*	61*	61*	61*	61*	61*	60*	61*	61*	58*	61*	61*	56*	61*	58*	54*	60*	57*	52	56*	53*	41	53*	46	33	45	37	44	35	48	38	47	42	34	42	38	30
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	34	46	45	45	46	38	40
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	46	46	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	34	46	44	45	46	36	40	46	48	36
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	47*	51*	51*	37	51*	41	32	51*	34	43
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	40	50*	48*	34
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	46	48	46	41	42
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	47	46	39	41	46	33	36	42	44	31	36	39	28
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	48	46	46	42	45	33	38
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	32	46	38	41	46	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	41	51*	44*	33	51*	35	43	51*	46	38	50*	40	34
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	40	50*	45*	34	49*	37	45
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	44*	49*	49*	36
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43*	50*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	42	48	48	34	48	45	45	48	38	40	48	48	33	35
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	41	48	48	36	48	48	46	48	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	35	48	45	46	47	36	40	47	35	40	42	31
			Exposed	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34	48	48	48	48	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	53*	53*	48*	52*	52*	37	53*	41	32	52*	34	43	51*	46	38
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47	54*	54*	42	52*	40	54*	42	32	53*	44	36	48*	38	53*	33	42	52*	44	36	48*	34	39	34	30	25
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	52*	52*	50*	51*	51*	40	49*	47*	34	48*	39	45
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	53*	41	53*	46*	33	45	37	44	35	48	38	47	42	34	42	38	30
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	34	43	43	45	43	38	40
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	34	43	43	34	43	43	45	43	36	40	43	48	36
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	37	46*	46*	46*	46*	41*	43
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	34
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	48	43	41	42
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	32	43	43	48	43	38	40
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32	43	43	32	43	43	48	43	36	40	43	48	36
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	44*	33	46*	35	43	46*	46	38	46*	40	34
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	35	44*	40*	46	39*	34	40	33	45	36
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	34	45	45	45	45	38	40	45	33	35
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	36	45	45	46	45	37	39	45	48	34	39	42	30	33	37	26	45	33	23	38	28	21
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	46	45	45	42	45	31	38
			Exposed	45	45	45	45	45	45	45	45	45	45	45	39	45	45	34	45	45	34	45	45	48	45	36	40	45	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	48*	50*	50*	37	49*	41	32	48*	34	43	47*	46	38
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	47*	50*	50*	40	50*	42	32	50*	33	42	50*	44	36	48*	38	32	39	34	28	34	30	25	46	39	45
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	33	45*	37	44	35	48	38	47	42	34	42	38	30
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	33	45*	37	44	35	48	38	47	42	34	42	38	30

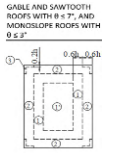
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

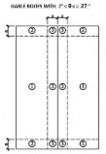
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

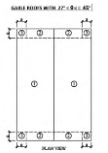
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

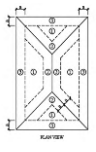












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

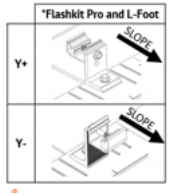
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	45	40	38	40		
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	34	43*	43*	45	43*	36	40	43*	48	36
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	32	41*	34	43			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	48	40	40	42		
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	47	40	39	41	40	33	36	40	44	51	36	39	29
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37	43*	43*	48	43*	39	42	43*	33	38
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40	43*	43*	32	43*	38	41	43*	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	34	41*	37*	45			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	33	41*	35*	43	41*	46	38	41*	40	34	41*	36	30			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	46	39*	34*	40	33*	45	36
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	34	43	43	45	43	38	40	43	33	35
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	36	43	43	46	39	42	30	33	37	39	43	48	34	39	42	30	45	29	29	
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	35	43	43	46	43	36	40	43	47	35	40	42	31
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	34	43	43	48	43	36	40	43	47	35	37	40	30	32	35	26	43	31	29	38	28	21	
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	41*	32	45*	34	43	45*	46	38
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	42*	32	45*	33	42	45*	44	36	41	45*	38	32	39*	34	28	34	30	25
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	34	43*	39*	45			
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	33	43*	37*	44	35	48	38	47	42	34	42	38	30
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	34	38	38	45	38	38	40		
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34	41*	41*	45	41*	36	40	41*	48	36
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	32*	37*	34*	43	
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	47	38	38	42		
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	47	38	38	41	38	33	36	38	44	51	36	39	29
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	48	41*	39*	42	41*	33	38
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	32	41*	38*	41	41*	32	36	40*	42	32	34	37	28	45	33	25	
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	34*	37*	37*	45			
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	35*	43	37*	46	38	37*	40	34	37*	36	30			
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*	36*	34*	40	33*	45*	36
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	45	40	38	40	40	33	35
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	46	40	37	39	40	48	34	39	42	30	33	37	28	45	29	29	
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	35	43*	43*	46	43*	36	40	43*	47	35	40	42	31
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39	43*	43*	34	43*	43*	48	43*	36	40	43*	47	35	37	40	30	32	35	26	43	31	29	38	28	21	
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	32	41*	34	43	41*	46	38
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	32	41*	33	42	41*	44	36	41	41*	38	32	39*	34	28	34	30	25
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	46	39*	34*	40	33*	45*	36
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	33*	39*	37*	44	35*	48	38	47	42	34	42	38	30

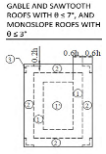
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

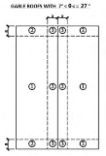
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

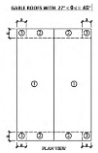
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

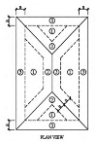












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

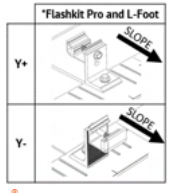
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	91	101	101	87	101	97	84	101	90	78	97	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	101	101	91	101	100	86	101	95	82	101	91	79	101	87	75	96	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	93	80	102	86	74	94	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	102	102	88	102	97	83	102	91	79	102	87	75	98	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	71	92	72	66	86	68	63	82	65	61
			Exposed	102	102	98	102	102	92	102	96	87	102	91	82	102	86	79	102	82	75	100	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	97	88	99	90	82	92	85	76	85	79	72	80	75	68	76	71	65
			Exposed	103	103	103	103	103	99	103	103	94	103	98	89	103	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	101	101	94	101	101	89	101	98	84	101	93	81	101	89	77	99	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	102	102	90	102	100	85	102	94	81	102	89	77	101	85	74	96	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	100	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	102	102	101	102	102	95	102	99	89	102	93	85	102	89	81	102	85	77	102	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	102	89	81	102	84	76	101	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	103	103	103	103	103	102	103	103	96	103	101	92	103	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57
			Exposed	103	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	101	99	86	101	94	82	101	90	78	99	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	102	96	82	102	90	78	102	86	74	96	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	74	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	102	101	91	102	95	86	102	90	81	102	85	77	102	81	74	98	77	71	94	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	102	81	74	97	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	103	103	98	103	103	93	103	103	84	103	96	88	103	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	63	61	56
			Exposed	103	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	91	95	95	87	95	95	84	95	90	78	95	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	95	95	91	95	95	86	95	95	82	95	91	79	95	87	75	95	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	93	80	95	86	74	94	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	95	95	88	95	95	83	95	91	79	95	87	75	95	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	71	92	72	66	86	68	63	82	65	61
			Exposed	99	99	98	99	99	92	99	96	87	99	91	82	99	86	79	99	82	75	99	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	97	88	99	90	82	92	85	76	85	79	72	80	75	68	76	71	65
			Exposed	102	102	102	102	102	99	102	102	94	102	98	89	102	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	95	95	94	95	95	89	95	95	84	95	93	81	95	89	77	95	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	95	95	90	95	95	85	95	94	81	95	89	77	95	85	74	95	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	95	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	99	99	99	99	99	95	99	99	89	99	93	85	99	89	81	99	85	77	99	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	99	89	81	99	84	76	99	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	102	102	102	102	102	102	102	102	96	102	101	92	102	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57
			Exposed	102	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	95	95	82	95	90	78	95	86	74	95	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	74	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	100	100	91	100	95	86	100	90	81	100	85	77	100	81	74	98	77	71	94	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	100	81	74	97	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	102	102	98	102	102	93	102	97	88	102	93	84	96	88	80	92	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	85	74	65	81	70	62	77	67	59
			Exposed	86	86	86	86	86	86	86	86	82	86	86	79	86	86	75	86	83	72	86	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	86	86	74	86	79	69	86	74	65	81	70	62	76	66	59	72	63	57
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	71	92	72	66	86	68	63	82	65	61
			Exposed	92	92	92	92	92	92	92	92	87	92	91	82	92	86	79	92	82	75	92	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	90	82	92	85	76	85	79	72	80	75	68	76	71	65			
			Exposed	95	95	95	95	95	94	95	95	89	95	94	85	95	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56			
	C	0-7	Interior	86	86	86	86	86	86	86	86	84	86	86	81	86	86	77	86	85	74	86	82	71	86	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	85	74	86	81	70	86	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	86	85	73	86	80	70	86	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	92	89	81	92	84	76	92	79	72	92	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	92	85	95	95	87	95	92	83	95	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57
			Exposed	95	95	87	95	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	86	82	71	86	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	86	86	82	86	86	78	86	86	74	86	81	71	86	78	68	86	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	86	78	67	86	74	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	93	93	91	93	93	86	93	90	81	93	85	77	93	81	74	93	77	71	93	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	93	81	74	93	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	88	80	92	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

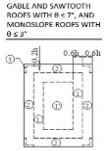
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

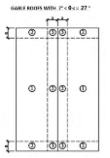
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

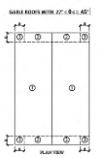
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

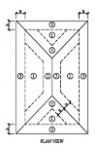












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

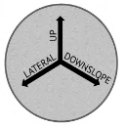
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

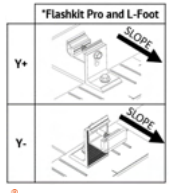
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	79	74	65	79	70	62	77	67	59						
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	69	79	75	65	79	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	65	80	70	62	76	66	59	72	63	57				
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	77	71	86	72	66	86	68	63	82	65	61			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	82	75	86	79	72	86	73	67	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	85	76	85	79	72	80	75	68	76	71	65		
			Exposed	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56			
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	71	79	79	71	79	76	66	79	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	64	79	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	70	80	78	68	80	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	80	80	73	80	80	70	80	76	66	80	73	64	80	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	81	86	86	79	86	85	77	86	81	74	86	75	68	86	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	86	86	81	86	84	76	86	79	72	86	75	69	86	72	66	86	86	69	84	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	87	90	90	83	90	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57			
			Exposed	90	90	87	90	90	82	90	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	74	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	88	88	88	88	88	86	88	88	81	88	85	77	88	81	74	88	77	71	88	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	88	81	74	88	76	70	88	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	88	80	91	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	91	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	74	65	78	70	62	77	67	59
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	75	65	78	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	65	78	70	62	76	66	59	72	63	57
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	71	82	72	66	82	68	63	81	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	67	82	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	85	76	83	79	72	80	75	68	76	71	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	71	78	76	66	78	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	64	78	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	70	78	78	68	78	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	78	78	73	78	78	70	78	76	66	78	73	64	78	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	77	82	81	74	82	75	68	82	79	64	82	76	69	76	63	57	77	62	58	73	60	56	69	57	54
			Exposed	82	82	81	82	82	76	82	79	72	82	75	69	82	72	66	82	69	64	82	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	84	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57			
			Exposed	86	86	86	86	86	82	86	86	78	86	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	74	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	83	83	83	83	83	83	83	83	81	83	83	77	83	81	74	83	77	71	83	74	68	83	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	83	81	74	83	76	70	83	73	66	83	69	64	83	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	87	87	80	87	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	65	74	70	62	74	67	59
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	65	74	70	62	74	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	65	74	70	62	74	66	59	72	63	57
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	62	74	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	71	78	72	66	78	68	63	77	65	61
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	73	67	78	68	63	78	64	60	75	61	57	71	59	55	67	56	60	64	54	58
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	76	80	79	72	79	75	68	76	71	65
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	82	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	63	74	67	60	73	64	57	69	61	55	66	59	60
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	64	74	71	62	74	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	68	74	74	68	74	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	74	74	73	74	74	70	74	74	66	74	73	64	74	74	69	74	74	66	74	74	64	74	74	64	74	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	68	78	69	64	77	65	61	76	62	58	73	60	56	69	57	54
			Exposed	78	78	78	78	78	76	78	78	72	78	75	69	78	72	66	78	69	64	78	66	62	78	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	74	79	76	69	76	72	65	71	68	62
			Exposed	82	82	82	82	82	82	82	82	78	82	82	75	82	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	71	76	76	68	76	76	66	76	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57			
			Exposed	76	76	71	76	76	68	76	75	65	76	71	63	76	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	74	65	76	71	63	76	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	76	76	67	76	74	64	76	70	62	76	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	77	71	80	74	68	80	68	63	79	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	80	80	74	80	76	70	80	73	66	80	69	64	80	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	83	83	77	82	81	74	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	84	84	80	84	84	76	84	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

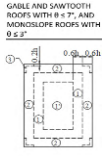
* Cells with an astrisks indicates that the L-Foot must be oriented in the Y- direction as indicated in the image below.

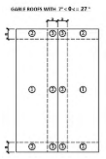
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

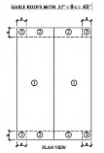
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

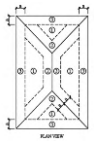












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

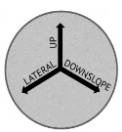
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

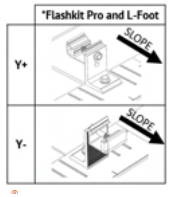
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	67	59			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	56	67	60	54	64	58	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	69	62	69	66	59	69	63	57			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	62	69	65	59	69	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	72	66	75	68	63	74	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	67	75	68	63	75	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	76	77	77	72	76	75	68	73	68	63	71	65	
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	57	69	61	55	66	59	60					
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	64	69	69	62	69	69	61	69	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	61	55	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	63	69	67	60	69	63	57	68	61	55	64	58	60					
			Exposed	69	69	69	69	69	69	69	69	66	69	69	64	69	69	62	69	66	60	69	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	68	75	69	64	74	65	61	73	62	58	72	60	56	69	57	54			
			Exposed	75	75	75	75	75	75	75	75	72	75	75	69	75	72	66	75	69	64	75	66	62	75	62	59	73	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	65	71	68	62	67	64	60	64	62	57
			Exposed	79	79	79	79	79	79	79	79	78	79	79	75	79	79	72	79	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	62	72	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	72	72	71	72	72	68	72	72	65	72	71	63	72	69	61	72	66	59	72	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	65	72	71	63	72	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	72	72	67	72	72	64	72	70	62	72	67	60	72	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	68	63	76	64	60	75	61	57	71	59	55	67	56	60	64	54	58
			Exposed	77	77	74	77	76	70	77	73	66	77	69	64	77	66	62	77	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	60	63	53	49
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	74	78	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	56	64	60	54	64	58	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	63	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	62	56	64	64	59	64	62	56	64	64	57
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	63
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	63	71	64	60	71	61	57	71	59	55	68	56	53
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	85*	85*	75	74	74	72	73	73	68	72	71	65
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	81*	76	72	76	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
			Exposed	71	71	71	71	71	71	71	71	71	71	71	69	71	71	66	71	69	64	71	66	62	71	62	59	71	59	56	68	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	75	75	74	74	74	69	72	72	65	71	68	62	67	64	60
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	76	81*	81*	75	81*	76	72	81*	76	69	76	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	59	67	63	56	67	60	54	64	58	59	62	56	57
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	61	67	66	59	67	64	57	67	60	54	64	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	66	60	68	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	68	68	67	68	68	64	68	68	62	68	67	60	68	64	58	68	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	68	63	73	64	60	72	61	57	71	59	55	67	56	60	64	54	58
			Exposed	74	74	74	74	74	70	74	73	66	74	69	64	74	66	62	74	64	60	74	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	77	77	77	74	75	75	68	74	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	78	78	78	78	78	72	78	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	55	58	55	60	56	60	56	60	58	54			
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	59
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	72*	73*	73*	68
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	74*	73*	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	59	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	60	60	56	57	59	61	55	57	59	53
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	58	60	60	56	58
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	65	60	56
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	66	62	67	62	59	67	59	56	67	57	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	72*	73*	73*	68
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	67	73*	70	64	69	66	61	65	63	58	63	61	56
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	56	63	63	60	54	63	58	59	62	56	57		
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	59	63	63	57	63	60	54	63	57	59	61	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	54	63	62	57	59	61	55	57	58	60	55	56	55
			Exposed	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	62	56	63	63	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	63	70	64	60	69	61	57	67	59	55	66	56	60	64	54	58		
			Exposed	70	70	70	70	70	70	70	70	66	70	69	64	70	66	62	70	64	60	70	62	58	70	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	80*	80*	80*	80*	75	79*	79*	74	73	73	68	72	70	64	69	66	61	65	63	58	63	60	56	60	58	54
			Exposed	81*	81*	80*	81*	81*	76	81*	80*	72	81*	76	69	76	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

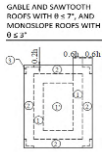
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

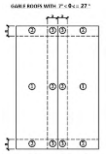
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

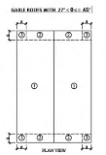
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

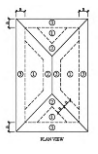












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

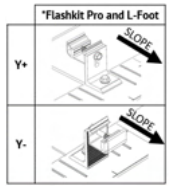
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59			
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59			
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	59	55	63	56	53
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	69*	69*	68*	68*	68*	67*	67*	65*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	67*	71*	70*	64*	69*	66*	61	66*	63	58	63	61	56
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	60
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57	57	61	55	57	59	59
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	57	57	60	57	56	57	58	
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	55	57	57	60	55	56	58	59	54	56	49	
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	62	58	63	60	56	62	57	54			
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	62	59	63	59	56	63	57	53	63	54	58	62	59	56	59	57	54			
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	69*	69*	69*	67*	67*	65*	65*	65*	62	66*	64*	60	64*	62	57
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	70*	68*	62	67*	64*	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	60	54	60	58	59	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	57	59	60	55	56	58	60	54	56	58	52	61	55	46
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	59	59	55	57	58	60	55
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	60	55	60	57	59	57	59	54	55	57	52	60	55	46	58	52	41				
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	64	60	66	61	57	65	59	55	64	56	60	62	54	58
			Exposed	67	67	67	67	67	67	67	67	66	67	67	64	67	66	62	67	64	60	67	62	58	67	59	55	67	56	60	63	53	57	61	58	55	58	56	60	63	56	54
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	72*	72*	72*	73*	73*	68	72*	71*	64	67	66	61	65	63	58	63	60	56	60	58	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	69	74*	73*	66	73*	70	64	71*	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59	54	54	57
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	61*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	60	64*	61*	57	64*	59	55	64*	56	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	67*	67*	66*	66*	64*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	64*	67*	66*	61*	65*	63*	58*	63*	61*	56
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	61	55	54	59	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	54	58
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	60	55	54	58	59	54	56	49
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	62*	58	63*	60	56	62*	57	54
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	62*	59	64*	59	56	64*	57	53	64*	54	58	62*	59	56	59	57	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	65*	65*	65*	63*	63*	62*	62*	62*	60*	61*	61*	57
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	62*	66*	64*	59*	63*	61*	56	60*	58*	54	58*	56	59	56	54	57
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	56	57	60	54	56	58	52	61	55	46
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	59	57	55	56	57	60	55
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	55	57	57	59	57	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	62	59	55	61	56	60	60	54	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	62	58	63	59	55	63	56	60	63	53	57	61	58	55	58	56	59	56	54	49		
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	68*	68*	68*	66*	66*	64*	65*	65*	61	65*	63	58	62	60	56	60	58	54
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	71*	70*	64*	70*	67*	62	66*	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

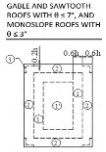
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

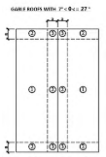
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

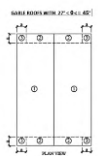
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

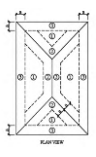












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

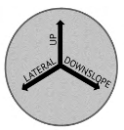
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

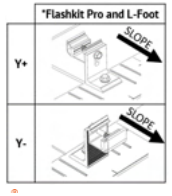
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	86	86	76	86	83	73	86	79	70	86	76	67	83	73	65	80	71	62	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	86	86	86	86	86	84	86	86	81	86	86	77	86	84	74	86	81	71	86	78	69	83	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	86	84	74	86	80	71	86	76	68	84	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	84	77	87	81	75	87	75	70	86	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	86	79	87	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	87	87	85	87	87	81	87	85	78	87	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	85	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	66	82	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	82	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	87	87	82	87	85	78	87	81	75	87	78	72	87	75	69	87	72	66	84	69	64	79	65	60	74	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	87	74	69	87	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	76	86	80	74	82	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	86	80	73	82	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	86	82	73	86	79	69	86	75	67	82	73	64	79	70	62	76	67	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	79	70	62	76	67	59	72	64	57	70	62	54	67	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	86	79	70	86	76	67	83	72	64	79	69	62	76	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	76	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	87	82	76	87	78	73	87	75	70	87	72	67	84	69	64	81	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	84	69	64	80	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	30
		27-45	Interior	87	87	81	87	84	77	86	81	74	83	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
10	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	81	81	76	81	81	73	81	79	70	81	76	67	81	73	65	80	71	62	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	71	81	78	69	81	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	81	81	74	81	80	71	81	76	68	81	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	84	84	77	84	81	75	84	75	70	84	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	79	86	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	86	86	85	86	86	81	86	85	78	86	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	81	81	78	81	81	81	81	81	78	81	78	69	81	75	66	81	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	81	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	66	81	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	81	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	84	84	82	84	84	78	84	81	75	84	78	72	84	75	69	84	72	66	84	69	64	79	65	60	74	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	84	74	69	84	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	86	86	86	86	86	83	86	86	80	86	83	76	86	80	74	82	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	86	80	73	82	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	81	81	73	81	79	69	81	75	67	81	73	64	79	70	62	76	67	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	79	70	62	76	67	59	72	64	57	70	62	54	67	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	81	79	70	81	76	67	81	72	64	79	69	62	76	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	76	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	85	82	76	85	78	73	85	75	70	85	72	67	84	69	64	81	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	84	69	64	80	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	30
		27-45	Interior	87	87	81	87	84	77	86	81	74	83	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	63	73	67	59	72	64	56	69	61	54	66	58	51
			Exposed	73	73	73	73	73	73	73	73	70	73	73	67	73	73	65	73	71	62	73	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	73	73	64	73	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	73	73	73	73	73	71	73	73	68	73	73	65	73	70	62	73	68	60	73	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	75	78	75	70	78	71	65	78	67	62	77	63	59	73	60	56	70	57	53
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	65	78	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	69	78	75	67	73	68	63	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	70	62	73	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	73	73	66	73	72	63	73	69	61	73	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	69	62	73	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	73	72	64	73	69	61	73	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	66	78	69	64	78	65	60	74	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	78	74	69	78	71	66	78	68	63	78	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	81	81	81	81	81	81	81	81	80	81	81	76	81	80	74	81	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	81	80	73	81	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	64	73	70	62	73	67	60	73	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	73	70	62	73	67	59	72	64	57	70	62	54	67	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	73	73	70	73	73	72	64	73	69	62	73	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38		
			Exposed	73	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	76	79	78	73	79	75	70	79	72	67	79	69	64	79	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	79	69	64	79	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	30
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

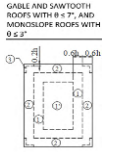
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

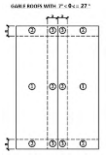
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

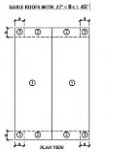
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

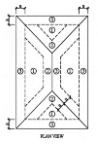












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

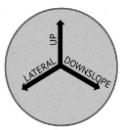
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

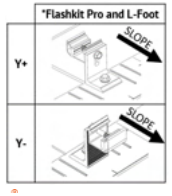
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	56	65	61	54	65	58	51			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60	65	64	57	65	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	61	54	66	57	66	61	54	66	58	52	63	55	43
			Exposed	66	66	66	66	66	66	66	66	66	66	66	65	66	66	62	66	66	60	66	65	58	66	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	71	65	73	67	62	73	63	59	73	60	56	70	57	53
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	65	73	68	63	73	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	58	65	65	59	65	59	52	63	56	43	60	53	38	57	49	34
			Exposed	65	65	65	65	65	63	65	65	61	65	65	58	65	64	56	65	62	54	65	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	63	56	66	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	66	66	64	66	66	61	66	66	58	66	63	56	66	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	66	73	69	64	73	65	60	73	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	73	73	69	73	71	66	73	68	63	73	65	61	73	63	58	73	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	76	76	73	76	76	70	76	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	65	65	62	65	65	59	65	64	57	65	62	54	65	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	74	69	64	74	66	61	74	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	77	71	78	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	78	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	56	63	61	54	63	58	51
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	57	63	61	53	63	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	57	63	61	54	63	58	52	63	55	43
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	63	54	63	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	62	68	63	59	68	60	56	68	57	53
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	63	59	68	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	72	72	66	70	68	63	73	70	65	62	57	54
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	58	63	63	59	63	59	52	63	56	43	60	53	38	57	49	34
			Exposed	63	63	63	63	63	63	63	63	61	63	63	58	63	63	56	63	62	54	63	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	56	63	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	63	63	63	63	63	61	63	63	58	63	63	56	63	61	54	63	59	52	63	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	62	68	63	59	68	60	56	68	57	53
			Exposed	68	68	68	68	68	66	68	68	63	68	65	61	68	63	58	68	61	56	68	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	68	71	70	64	69	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	73	73	73	73	73	70	73	73	67	73	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42		
			Exposed	65	65	62	65	65	59	65	64	57	65	62	54	65	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	74	69	64	74	66	61	74	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	77	71	78	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	78	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	51			
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	57	49	58	55	41	58	52	36	56	46	48
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	57	59	59	54	59	58	52	58	55	43
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	54	59	58	51	59	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	60	56	63	57	53
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	56	62	63	54	59	56	52	59	44	36
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	68*	68*	66	69*	68*	63	67*	64	60	63	62	57
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	68*	63	68*	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	43	58	53	38	57	49	34
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	53	58	56	44	58	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	52	58	56	44	57	53	38	56	47	33	54	40	45
			Exposed	59	59	59	59	59	59	59	59	58	59	59	56	59	59	54	59	59	52	59	57	47	59	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	56	63	57	53	62	55	48	61	52	40	59	44	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	61	63	63	58	63	61	56	63	58	54	63	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	70*	70*	64	67*	65	60	63	62	57	61	59	54	59	56	52	57	54	44
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	69*	65	69*	68*	62	69*	65	60	67*	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	54	61	58	50	61	55	41	59	52	36	56	45	48	53	40	42
			Exposed	61	61	61	61	61	59	61	61	57	61	61	54	61	59	53	61	57	49	61	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	55	61	58	52	60	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	61	61	59	61	61	57	61	61	54	61	59	52	61	57	47	61	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	64	60	66	60	56	65	57	53	63	54	45	62	49	38	59	41	34	56	36	45
			Exposed	66	66	64	66	66	61	66	63	59	66	61	56	66	58	54	66	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	74*	75*	75*	71	75*	75*	68	74*	70	66	69	69	64	67	65	60	64	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	75*	75*	68	75*	71	65	71	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

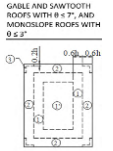
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

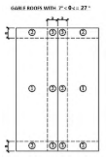
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

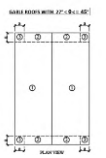
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

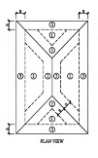












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

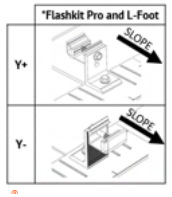
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	49	54	54	41	54	52	36	54	46	48
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	54	43
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	41	54	52	36	54	43	48	53	38	43
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	60*	56	62*	57	53		
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	60*	55	62*	56	52	62*	53	44	62*	49	38	59	41	34
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	63*	63*	61*	61*	60*	60*	60*	57*		
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	59*	64*	61*	56	61*	58*	53	58*	55	48	55	53	41
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	43	54	54	53	38	54	49	34
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	54	54	54	44	54	53	37	54	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	44	54	53	38	53	47	33	52	40	45			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	47	54	53	38	54	46	33	53	38	43	48	34	38	40	45	33	36	40	90	
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	61*	56	62*	57	53	61*	55	48	57	52	40	56	44	36			
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	61*	62*	62*	58	62*	61*	56	62*	58	54	62*	55	49	62*	52	40	59	42	34	56	36	45	54	48	40	51	43	36			
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	63*	62*	62*	60*	60*	60*	57*	58*	58*	54	59*	56	52	57*	54	44			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	60*	65*	63*	58*	63*	59*	54	59*	56	51	56	53	41	53	47	36	47	40	48	40	36	43	
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	50	56	55	41	56	52	36	56	45	48	53	40	42
			Exposed	56	56	56	56	56	56	56	56	56	54	56	56	53	56	56	49	56	56	43	56	52	36	56	44	47	53	38	41	47	33	36	40	44	91	36	39	90		
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	52	56	55	42	55	52	36	54	43	48	53	38	42	48	33	38	
			Exposed	57	57	57	57	57	57	57	57	54	57	57	52	57	57	47	57	55	41	57	53	38	56	44	48	53	37	41	45	48	36	38	42	92	34	37	90	45	33	95
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	60	56	61	57	53	60	54	45	59	49	38	57	41	34	56	36	45
			Exposed	62	62	62	62	62	62	59	62	61	56	62	58	54	62	56	52	62	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	33	45	36			
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	66*	66*	65*	65*	64*	66*	65*	60	63*	61	56	59	58	53	57	55	48	55	53	41	53	47	36	
			Exposed	67*	67*	67*	67*	67*	65*	67*	67*	63*	67*	66*	60	67*	63*	58	65*	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	41	50	50	36	50	46	48
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	38	43
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	55*	56*	56*	52*	56*	53*	44	56*	49	38	56*	41	34
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	58*	57*	57*	57*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	59*	58*	53*	58*	55*	48	55*	53*	41
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	38	50	49	34		
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	37	50	47	49	50	40	43	50	35	38	43	47	33
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	38	50	46	33	50	38	43	48	34	38	40	90	
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	55*	48	56*	56*	53*	57*	55*	48	56*	53*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	54*	56*	55*	49	56*	52*	40	56*	42	34	56*	36	45	54*	48	40	51	43	36			
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	57*	57*	56*	56*	54*	54*	54*	52*	53*	53*	44			
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	55*	59*	56*	51*	56*	53*	41	53*	47	36	47	40	48	40	36	43	
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	41	52	52	36	52	45	48	52	40	42
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	43	52	52	36	52	44	47	52	38	41	47	33	36	40	44	91	36	39	90
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	42	52	52	36	52	43	48	51	38	42	48	33	38
			Exposed	53	53	53	53	53	53	53	53	52	53	53	47	53	53	41	53	53	38	53	44	48	53	37	41	45	48	36	38	42	92	34	37	90	45	33	95			
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	60*	56	60*	57	53	59*	54	45	58*	49	38	55	41	34	53	36	45
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	59*	61*	61*	56	61*	58*	54	61*	56	52	61*	54	48	61*	50	39	59*	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	62*	60*	60*	60*	59*	59*	56*	57*	57*	53	57*	55*	48	55*	53	41	52	47	36
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	60*	64*	63*	58*	63*	61*	56*	62*	59*	54	58*	55*	49	55*	52	40	52	44	35	42	38	46	37	34	40	33	45	36
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	47	47	46	48
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	36	47	47	43	48	47	38
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	49*	38	52*	41	34
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	41
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	38	47	47	34		
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	47	47	47	49	47	40	43	47	35	38	43	47	33
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	47	33	47	40	45
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	34	38	46	33	36	40	90
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	40	51*	44	36
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	52*	40	52*	42	34	52*	36	45	52*	48	40	51*	43	36
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	51*	44*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41	52*	47*	36	47*	40	48	40	36	43
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	36	49	45	48	49	40	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	36	49	44	47	49	38	41	47	33	36	40	44	91	36	39	90	
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	50	36	49	43	48	48	38	42	47	33	38
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	50	50	44	48	50	37	41	45	48	36	38	42	92	34	37	90	45	33	95
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	53*	57*	54*	45	55*	49
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	54*	48	55*	50	39	55*	40	33	55*	35	43	53*	46	38	47	40	34	40	36	90	
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	56*	56*	55*	55*	53*	53*	53*	49*	52*	52*	41	50*	47	36
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	54*	58*	55*	40	52*	44	35	42	38	46	37	34	40	33	45	36				

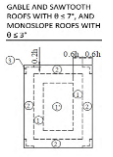
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

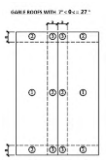
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

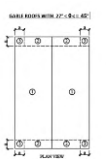
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

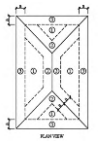












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

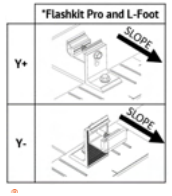
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	36	44	44	48
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	36	45	43	48	45	38	43
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	38	49*	41	34
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	44	44	38	44	44	34
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	37	44	44	49	44	40	43	44	35	38	43	47	33
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	38	45	45	33	45	40	45
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33	45	38	43	45	34	38	40	45	33	36	40	90
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	40	49*	42*	34	49*	36	45	49*	46	40
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	40	49*	42*	34	49*	36	45	49*	43	36
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	36	47*	47*	40*	48	40*	36	43
	D	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	36	47	45	48	47	40	42
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	38	41	47	33	36	40	44	91	36	39	88
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	36	47	43	48	46	38	42
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	38	47	47	36	47	43	92	34	37	88
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45	51*	49*	38	50*	41	34	49*	36	45
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43	51*	46	38	47*	40	34	40	36	90
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	51*	48*	50*	50*	41	49*	47*	36
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44*	52*	49*	52*	52*	40	52*	44*	35	42*	38	46	37	34	40	33	45	36
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	36	42	42	48
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	36	45*	42	48	45*	38	43
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41	45*	45*	44*	45*	45*	38*	45*	41*	34
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	49	42	40	43	42	35	38	42	47	33
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42	45*	45*	42	45*	45*	33	45*	40	45
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	45*	33	45*	38	43	45*	34	38	40	45	33	36	40	90
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	44*	36
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	45*	40*	45*	42*	34	45*	45*	36	45	45*	48	40	45*	43	36
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*	42*	42*	36*	42*	40*	48	40*	36*	43
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	36	44	44	48	44	40	42
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	36	44	44	47	44	38	41	44	33	36	40	44	91	36	39	88
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	36	45	43	48	45	38	42	44	33	38
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	38	45	44	48	45	37	41	45	48	36	38	42	92	34	37	88
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	45*	49*	49*	38	48*	41	34	47*	36	45
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	39	49*	49*	40	33	49*	35	43	49*	46	38	47*	40	34	40	36	90
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	36
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	40*	47*	44*	35	42*	38	46	37	34	40	33	45	36

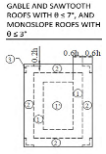
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

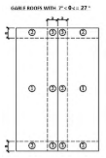
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

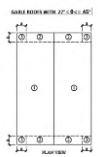
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

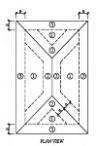












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

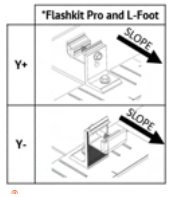
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	92	102	102	88	102	98	85	102	91	78	98	85	73	92	79	69	86	75	65	81	71	62	77	68	60
			Exposed	102	102	92	102	101	87	102	96	83	102	92	79	102	88	76	97	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	94	81	102	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	102	102	89	102	98	84	102	92	80	102	88	76	99	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	82	103	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	103	103	99	103	103	93	103	97	88	103	92	83	103	87	79	103	83	76	101	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	97	103	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	103	103	103	103	103	100	103	103	95	103	99	90	103	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	102	102	95	102	102	90	102	98	85	102	94	81	102	90	78	100	86	75	96	83	72	89	77	67	83	72	62	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	102	90	78	99	85	74	94	81	70	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	102	102	91	102	101	86	102	95	82	102	90	78	102	86	74	97	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58
			Exposed	102	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	58
		20-27	Interior	103	103	102	103	103	96	103	100	90	103	94	86	103	90	82	103	86	78	103	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	103	90	81	103	103	85	77	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	103	103	103	103	103	103	103	103	97	103	102	92	103	97	88	102	93	84	98	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	103	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	102	100	87	102	95	82	102	91	78	100	87	75	96	83	72	92	80	69	88	77	66	82	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57
			Exposed	96	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	102	97	83	102	91	79	102	87	75	97	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	103	102	92	103	96	87	103	91	82	103	86	78	103	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	103	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	85	95	91	78	95	85	73	92	79	69	86	75	65	81	71	62	77	68	60
			Exposed	95	95	92	95	95	87	95	95	83	95	92	79	95	88	76	95	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	94	81	96	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	96	96	89	96	96	84	96	92	80	96	88	76	96	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	82	100	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	100	100	99	100	100	93	100	97	88	100	92	83	100	87	79	100	83	76	100	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	97	102	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	102	102	102	102	102	100	102	102	95	102	99	90	102	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	81	95	90	78	95	86	75	95	83	72	89	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	95	90	78	95	85	74	94	81	70	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	96	96	91	96	96	86	96	95	82	96	90	78	96	86	74	96	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58
			Exposed	96	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	100	100	100	100	96	100	100	90	100	94	86	100	90	82	100	86	78	100	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54	
			Exposed	100	90	81	100	85	77	100	80	73	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	102	102	102	102	102	102	102	102	97	102	102	92	102	97	88	102	93	84	98	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	102	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	95	95	87	95	95	82	95	91	78	95	87	75	95	83	72	92	80	69	88	77	66	82	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57
			Exposed	95	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	96	96	83	96	91	79	96	87	75	96	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	101	101	92	101	96	87	101	91	82	101	86	78	101	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	101	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	78	86	85	73	86	79	69	86	75	65	81	71	62	77	68	60
			Exposed	86	86	86	86	86	86	86	86	86	86	86	79	86	86	76	86	84	73	86	81	70	86	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	81	87	87	75	87	80	70	87	75	65	82	70	62	77	66	60	73	64	58
			Exposed	87	87	87	87	87	84	87	87	80	87	87	76	87	84	72	87	80	69	87	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	82	92	84	76	92	78	71	92	73	67	87	69	64	83	65	61
			Exposed	92	92	92	92	92	92	92	92	88	92	92	83	92	87	79	92	83	76	92	80	73	92	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	80	75	71	64	70	67	61	66	64	59	63	61	57			
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	86	75	86	83	72	86	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	86	86	78	86	85	74	86	81	70	86	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	87	87	87	87	87	86	87	87	82	87	87	78	87	86	74	87	82	71	87	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58
			Exposed	87	86	74	87	81	70	87	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	86	92	90	82	92	86	78	92	82	75	92	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	92	90	81	92	85	77	92	80	73	92	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	92	96	96	88	96	93	84	96	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	96	96	88	96	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	75	86	83	72	86	80	69	86	77	66	82	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57
			Exposed	86	83	72	86	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	87	87	83	87	87	79	87	87	75	87	82	71	87	79	68	87	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	87	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	94	94	92	94	94	87	94	91	82	94	86	78	94	82	75	94	78	71	94	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	94	82	74	94	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	97	97	97	97	97	89	97	94	85	97	89	81	93	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	97	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

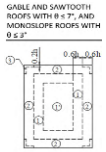
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

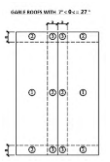
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

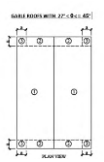
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

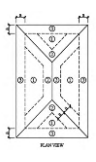












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

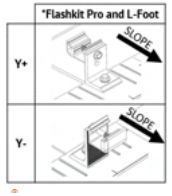
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	71	80	79	69	80	75	65	80	71	62	77	68	60
			Exposed	80	80	80	80	80	80	80	80	80	80	80	79	80	80	76	80	80	73	80	80	70	80	75	65	80	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	70	62	77	66	60	73	64	58			
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	72	80	80	69	80	76	67	80	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57			
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	84	76	87	78	71	87	82	73	67	87	69	64	83	65	61			
			Exposed	87	87	87	87	87	87	87	87	87	87	87	83	87	87	79	87	83	76	87	80	73	87	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53			
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	85	77	86	80	73	81	76	69	76	72	65						
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57						
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	77	67	80	72	63	78	68	60	73	65	58	70	62	55	66	59	53			
			Exposed	80	80	78	80	80	74	80	80	70	80	78	67	80	75	65	80	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53			
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	74	80	80	71	80	79	68	80	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58			
			Exposed	80	80	74	80	80	70	80	77	67	80	73	64	80	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50			
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	87	87	87	82	87	86	78	87	82	75	87	75	69	87	70	64	83	66	61	78	63	59	74	60	56	70	58	54			
			Exposed	87	87	81	87	85	77	87	80	73	87	76	70	87	73	67	87	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58			
			Exposed	90	90	88	90	90	83	90	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57			
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55			
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	88	88	88	88	88	87	88	88	82	88	86	78	88	82	75	88	78	71	88	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59			
			Exposed	88	82	74	88	77	71	88	73	67	88	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	92	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	65	78	71	62	77	68	60			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	75	65	78	71	62	76	66	59	72	63	57	68	61	54	65	58	60			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	70	62	77	66	60	73	64	58			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	72	78	78	69	78	76	67	78	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57			
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	78	71	82	73	67	82	69	64	82	65	61			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	76	82	80	73	82	73	67	82	68	63	81	64	60	76	61	58	72	59	55	68	57	53			
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	85	77	84	80	73	81	76	69	76	72	65			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57						
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	63	78	68	60	73	65	58	70	62	55	66	59	53			
			Exposed	78	78	78	78	78	74	78	78	70	78	78	67	78	75	65	78	72	63	78	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	71	78	78	68	78	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58			
			Exposed	78	78	74	78	78	70	78	77	67	78	73	64	78	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50			
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	78	71	82	73	67	82	69	64	82	65	59			
			Exposed	82	82	81	82	82	77	82	80	73	82	76	70	82	73	67	82	70	64	82	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	81	85	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58			
			Exposed	86	86	86	86	86	83	86	86	79	86	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57			
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55			
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	78	84	82	75	84	78	71	84	75	68	84	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59			
			Exposed	84	82	74	84	77	71	84	73	67	84	70	64	84	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	88	88	88	88	88	88	88	88	88	88	88	85	88	88	81	87	86	77	86	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	88	88	81	88	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	65	74	71	62	74	68	60			
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	62	74	66	59	72	63	57	68	61	54	65	58	60						
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	70	62	75	66	60	73	64	58			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	72	75	75	69	75	75	67	75	75	67	75	71	63	75	66	59	71	63	57	67	60	54	64	57	60	61	55	57			
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	71	78	73	67	78	69	64	78	65	61			
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	64	78	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	81	75	80	77	70	77	72	65	72	68	62	68	65	60			
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	C	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	66	76	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57			
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	65	76	72	63	76	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55					
			Exposed	76	76	68	76	74	65	76	71	63	76	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	71	80	75	68	80	69	64	80	65	61	76	62	58	72	59	55	68	57	53	65	54	59					
			Exposed	80	80	74	80	77	71	80	73	67	80	70	64	80	67	62	80	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	77	83	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	84	84	81	84	84	76	84	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	66	76	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57					
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	65	76	72	63	76	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55					
			Exposed	76	76	68	76	74	65	76	71	63	76	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	71	80	75	68	80	69	64	80	65	61	76	62	58	72	59	55	68	57	53	65	54	59					
			Exposed	80	80	74	80	77	71	80	73	67	80	70	64	80	67	62	80	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	77	83	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	84	84	81	84	84	76	84	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			

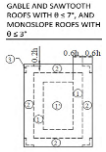
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

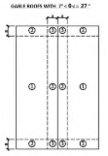
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

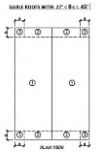
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

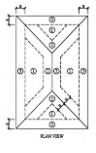












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

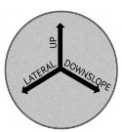
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

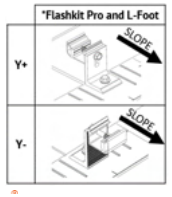
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	68	60			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	57	68	61	54	65	58	60
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	62	70	66	60	70	64	58
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70	70	67	70	70	63	70	66	59	70	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	73	67	75	69	64	75	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	73	67	75	68	63	75	64	60	75	61	58	72	59	55	68	57	53
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	65
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	60	69	69	65	58	69	62	55	66	59	53
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	65	69	69	63	69	69	61	69	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53			
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	64	70	68	61	70	64	58	69	61	55	65	58	53	62	56	58
			Exposed	70	70	70	70	70	70	70	70	67	70	70	64	70	70	62	70	67	60	70	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	58
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	64	75	66	61	74	63	59	73	60	56	70	58	54
			Exposed	75	75	75	75	75	75	73	75	75	70	75	73	67	75	70	64	75	70	64	75	67	62	75	63	59	73	60	56	69	57	53	65	54	59	73	60	56	69	57	53
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	72	65	72	68	62	68	65	60	65	62	58	
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	72	80	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	71	63	73	67	59	72	63	57	68	61	54	65	58	60	62	56	57	
			Exposed	73	73	72	73	73	68	73	73	65	73	72	63	73	69	61	73	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	73	73	73	73	73	73	73	73	73	71	73	73	68	73	73	65	73	72	63	73	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	59	53	55
			Exposed	73	73	68	73	73	65	73	71	63	73	67	60	73	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	71	77	75	68	77	69	64	76	65	61	75	62	58	72	59	55	68	57	53	65	54	59	
			Exposed	77	77	74	77	77	71	77	73	67	77	70	64	77	67	62	77	64	60	77	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	58	54	50
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77	80	80	74	78	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81	81	81	81	81	76	81	81	73	81	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	63	57	65	61	54	65	60
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60	65	64	58
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	59	65	60	54	64	57	60
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	64	72	65	61
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	68	63	72	64	60	72	61	58	72	59	55	68	57	53
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	75	75	73	74	74	69	73	72	65			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	60	65	65	58	65	62	55	65	59	53
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	65	58	65	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	61	65	64	58	65	61	55	64	58	53	62	56	58
			Exposed	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	59	65	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50		
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	66	61	71	63	59	70	60	56	68	58	54			
			Exposed	72	72	72	72	72	72	72	72	72	70	72	72	67	72	70	64	72	67	62	72	63	59	72	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	75	74	74	70	73	72	65	72	68	62	68	65	60	65	62	58	
			Exposed	77	77	77	77	77	77	77	77	77	76	77	77	72	77	77	69	77	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	63	68	63	57	68	63	57	68	61	54	65	59	60	62	56	57	
			Exposed	68	68	68	68	68	68	68	68	65	68	68	63	68	68	61	68	67	59	68	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	68	63	67	60	54	64	57	60	61	55	57	59	53	59	53	55		
			Exposed	68	68	68	68	68	65	68	68	63	68	67	60	68	65	59	68	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	69	64	74	65	61	73	62	58	72	59	55	68	57	53	65	54	59	
			Exposed	74	74	74	74	74	71	74	74	70	74	67	64	74	67	62	74	64	60	74	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	58	54	50
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	77	77	77	74	76	76	69	74	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	79	79	79	79	79	76	79	79	73	79	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60			
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	54	61	58	60
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	61	57	60	54	61	57
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	68	68	68	64	68	68	61	68	68	59	55	68	57	53
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	74*	75*	75*	73*	74*	74*	69	73*	70	65
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	75*	74*	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	55	61	59	53
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	60	61	56	57	60	54	55	57	59	53
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	58	53	60	56	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	55	61	58	53	61	56	50
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	68	57	68	63	59	65	54	59
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	67	62	68	63	59	68	60	56	68	57	53	65	54	59	68	60	56	68	57	53
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	74*	76*	76*	75*	74*	74*	70	73*	73*	65	69	68	62	67	65	60	65	62	58
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72	75*	75*	69	74*	74*	67	73*	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	59	64	64	63	57	64	61	54	64	58	60	62	56	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	63	64	64	61	64	64	59	64	64	57	64	64	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	64	60	64	64	60	64	63	57	60	61	55	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	64	60	64	64	60	63	57	60	64	60	54	60	54	55	57
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	69	64	71	65	61	70	62	58	68	59	55	67	57	53	65
			Exposed	71	71	71	71	71	71	71	71	67	71	70	64	71	67	62	71	64	60	71	62	59	71	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	83*	83*	76	82*	82*	74	74	74	69	72	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81*	81*	81*	81*	81*	76	81*	81*	73	81*	77	70	76	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

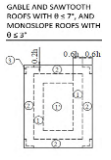
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

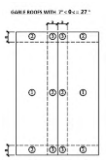
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

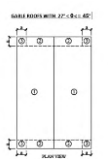
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

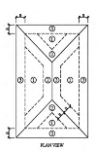












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

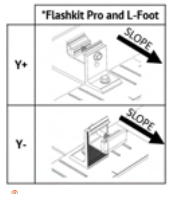
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60			
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	57	60	58	55	57
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	61	58	64	59	55	64	57	53
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	70*	70*	69*	69*	69*	68*	68*	65	
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	71*	64	70*	67*	61	66*	64	59	63	61	57
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	56	57	57	54	55	57	59	53
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	58	58	56	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	53	58	55	58	58	53	55	56	58	53	54	56	50
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	63	59	64	60	56	63	58	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	63	59	64	60	56	64	57	53	64	54	59	62	60	56	60	58	54
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	68*	68*	65	69*	68*	62	67*	65	60	63	62	58	
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	69*	72*	72*	67*	71*	69*	63	67*	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	60	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	59	60	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	60	54	61	57	60	60	55	57	59	53	55
			Exposed	61	61	61	61	61	61	61	61	61	61	61	60	61	61	59	61	61	57	61	61	55	61	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	65	59	55	64	57	53	63	54	59
			Exposed	67	67	67	67	67	67	67	67	67	64	67	67	62	67	64	60	67	62	59	67	59	56	67	56	53	64	54	58	61	59	55	59	56	53	56	54	58	50	
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	69	72*	70	64	68	67	62	66	64	59	63	61	56	61	59	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	70	74*	74*	67	74*	71	64	72*	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	60	55	55	57
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	60	65*	61	58	65*	59	55	65*	57	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	66*	66*	65*	65*	65*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	67*	61*	66*	64*	59	63*	61*	57			
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	54	55	54	59	53
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58	55	53	55	55	58	53	54	56	50
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59	61	60	56	60	58	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	65*	65*	65*	64*	64*	63*	63*	63*	60*	61*	61*	58
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	63*	67*	64*	60*	64*	61*	57	61*	59	54	58	56	60	56	54	58
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	57	57	53	54	56	58	52
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	57	60	58	55	57	57	53	55			
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	62	58	63	59	55	62	57	53	61	54	59
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	62	59	64	59	56	64	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	67*	67*	64	68*	67*	62	66*	64	59	62	61	56	61	59	54
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	72*	72*	67*	72*	71*	64	71*	68*	62	67*	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

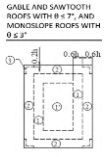
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

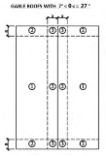
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

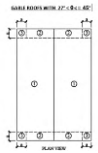
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

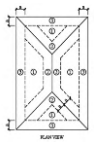












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

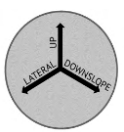
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

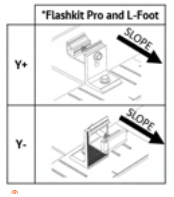
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	76	81	81	73	81	80	71	81	77	68	81	72	64	77	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	81	81	73	81	79	70	81	76	67	81	73	64	80	70	62	77	68	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	74	81	81	71	81	78	69	81	75	66	80	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	81	81	71	81	77	68	81	74	65	81	71	62	78	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	72	67	82	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	82	82	78	82	80	74	82	76	71	82	73	68	82	70	65	82	68	63	79	65	60	74	61	57	70	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	76	82	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	82	82	82	82	82	78	82	81	75	82	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	81	81	75	81	81	78	69	81	74	66	81	72	63	79	69	61	76	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	42	52	33	42
			Exposed	81	72	63	78	68	61	74	66	58	71	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	26
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	79	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	26	45	33	25
		20-27	Interior	82	82	79	82	82	78	72	82	75	69	82	72	67	82	69	64	81	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	82	72	66	82	68	63	80	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	82	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	81	77	68	81	73	65	80	70	62	77	67	59	73	64	57	71	62	55	68	60	53	64	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	73	64	57	70	61	55	67	59	52	64	56	47	62	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	82	80	73	82	76	70	82	72	67	82	69	64	81	67	62	78	64	60	75	62	57	70	58	54	66	54	48	62	51	37	59	41	32	56	34	42	54	46	38
			Exposed	81	67	62	77	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	42	30
		27-45	Interior	82	82	78	82	81	74	82	77	71	80	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	76	76	73	76	76	70	76	76	67	76	73	64	76	70	62	76	68	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	76	76	71	76	76	68	76	74	65	76	71	62	76	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	72	67	79	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	79	79	78	79	79	74	79	76	71	79	73	68	79	70	65	79	68	63	79	65	60	74	61	57	70	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	74	66	76	72	63	76	69	61	76	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	76	72	63	76	68	61	74	66	58	71	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	76	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	26	45	33	25
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	79	72	66	79	68	63	79	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	81	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	76	76	70	76	76	75	76	72	64	76	69	61	76	67	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	76	76	73	76	76	68	76	74	65	76	71	62	76	68	60	75	65	58	72	63	56	67	59	52	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	73	64	57	70	61	55	67	59	52	64	56	47	62	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	80	80	73	80	76	70	80	72	67	80	69	64	80	67	62	78	64	60	75	62	57	70	58	54	66	54	48	62	51	37	59	41	32	56	34	42	54	46	38
			Exposed	80	67	62	77	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	42	30
		27-45	Interior	82	82	78	82	81	74	82	77	71	80	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	60	67	64	57	67	61	54	66	58	52	63	56	43
			Exposed	67	67	67	67	67	67	67	67	67	67	67	64	67	67	62	67	67	60	67	65	58	67	63	56	67	61	54	65	58	50	62	55	41	59	52	34	56	45	40
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	58	67	62	55	67	59	52	63	56	44	60	53	36
			Exposed	67	67	67	67	67	67	67	67	65	67	67	62	67	67	60	67	65	58	67	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	72	67	73	68	63	73	64	59	73	61	56	70	58	54	67	55	50
			Exposed	73	73	73	73	73	73	73	73	71	73	73	68	73	70	65	73	68	63	73	65	60	73	61	57	70	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	71	76	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	76	76	76	76	76	76	76	75	76	76	76	72	76	75	69	76	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	66	67	67	63	67	67	61	67	67	59	67	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	67	67	63	67	67	61	67	66	58	67	63	56	67	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	61	67	67	59	67	64	57	67	60	54	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	67	67	61	67	66	59	67	63	56	67	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	26	45	33	25
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	73	72	66	73	68	63	73	66	61	73	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	74	76	76	76	71	76	74	68	76	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	76	76	71	76	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	61	67	67	59	67	64	57	67	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	67	67	59	67	64	56	67	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	61	67	67	59	67	64	57	67	60	53	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	67	67	61	67	66	59	67	63	56	67	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	26	45	33	25
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	73	72	66	73	68	63	73	66	61	73	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	74	62	57	70	58	54	66	54	48	62	51	37	59	41	32	56	34	42	54	46	38
			Exposed	74	67	62	74	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	42	30
		27-45	Interior	77	77	77	77	77	77	77	77	71	77	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30

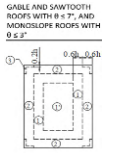
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

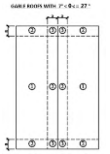
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

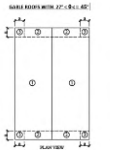
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

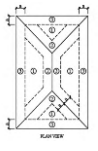












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

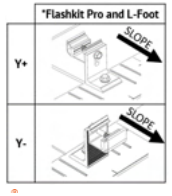
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	52	60	56	43
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	54	60	58	50	60	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	59	52	60	56	44	60	53	36		
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	52	60	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	64	59	67	61	56	67	58	54	67	55	50
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	63	67	65	60	67	61	57	67	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	63	70	65	60	66	57	57	63	59	55
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	59	52	60	56	44	60	53	36	57	49	42
			Exposed	60	60	60	60	60	60	60	60	58	60	60	56	60	60	54	60	59	52	60	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	57	47	60	53	37	57	49	48	55	39	42	52	33	38
			Exposed	60	60	60	60	60	59	60	60	56	60	60	54	60	58	52	60	56	46	60	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	62	67	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	67	67	66	67	67	63	67	66	61	67	63	58	67	60	56	67	58	54	67	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	71	66	71	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	72	72	71	72	72	68	72	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	64	69	67	62	69	64	60	69	62	57	69	58	54	66	54	48	62	51	37	59	41	32	56	34	42	54	46	38
			Exposed	69	67	62	69	64	59	69	61	57	69	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	30	25
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	68	73	71	66	73	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	73	71	66	73	68	63	70	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	52	58	56	43
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	50	58	55	41	58	52	34	56	45	45	54	38	40
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	43	58	52	34	56	44	45	54	36	36
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	61	56	62	58	54	62	55	50
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	61	57	62	57	53	62	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	70*	65	60	63	62	57	61	59	55
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67	69*	69*	64	69*	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	58	58	58	56	44	58	53	36	57	49	42
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	57	47	58	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	58	58	58	57	58	58	54	58	53	37	57	49	38
			Exposed	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	58	52	58	57	47	58	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	62	58	62	52	38
			Exposed	62	62	62	62	62	62	62	62	61	62	62	58	62	60	56	62	58	54	62	56	52	62	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	68*	69*	69*	66	68*	66	62	64	63	58	62	60	55	60	57	52	57	54	44	55	52	36
			Exposed	69*	69*	69*	69*	69*	68*	69*	69*	65	69*	68*	62	69*	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	58	64	64	58	62	51	37	59	41	32	56	34	42	54	46	38			
			Exposed	64	64	62	64	64	59	64	61	57	64	58	54	64	56	52	64	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	30	25
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	69	75*	69	68	75*	69	66	69	69	63	67	67	61	65	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	75*	69	66	69	68	63	69	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	43			
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	41	53	52	34	53	45	45	53	38	40
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44	53	53	36			
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54	60*	55	50
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	57	60*	57	53	60*	54	46	60*	57	37	58	41	32	57	34	43
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	61*	61*	60*	59*	59*	57*	58*	58*	55
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	58*	63*	61*	56*	60*	57*	52	57*	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	44	53	53	36	53	49	48	53	41	42
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	47	53	53	37	53	48	47	53	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	54	37	53	49	48	52	39	42	51	33	38
			Exposed	54	54	54	54	54	54	54	54	54	54	54	52	54	54	46	54	54	39	54	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25			
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	58	54	60*	55	51	57	52	40	56	45	34	55	37	45
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54	60*	56	52	60*	53	41	60*	44	33	57	35	43	54	46	38	52	40	34	43	36	30			
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	58*	58*	58*	55	58*	57*	52	56*	54	44	53	52	36
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	60*	63*	63*	58*	63*	61*	56*	60*	57*	52	57*	54	43	54	49	35	49	40	46	39	34	40	33	45	36			
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	52	56	55	42	56	52	34	56	45	45	53	38	40	50	33	35
			Exposed	56	56	56	56	56	56	56	56	54	56	56	52	56	56	47	56	55	41	56	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	54	56	56	45	55	53	36	54	45	46	53	36	40	49	47	34
			Exposed	56	56	56	56	56	56	56	56	52	56	56	47	56	54	39	56	52	34	56	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	58	54	60	54	48	58	51	37	57	41	32	56	34	42	54	46	38
			Exposed	60	60	60	60	60	59	60	60	57	60	58	54	60	56	52	60	54	47	60	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	26	34	30	25
		27-45	Interior	65*	65*	65*	65*	65*	63*	65*	65*	60	65*	63*	58	65*	61	56	62*	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	64*	63*	61	64*	62*	57	63*	59	54	57	56	50	55	53	40	53	47	34	48	39	45			

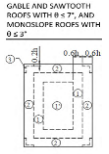
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

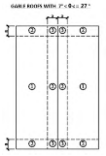
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

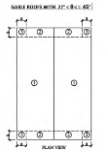
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

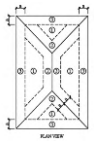












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

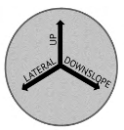
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

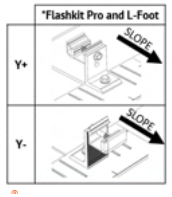
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	34	49	45	45	49	38	40
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	49	49	49	36
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	34	49	44	45	49	36	40
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	50	54*	54*	50
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	53*	55*	54*	46	55*	51*	37	55*	41	32	54*	34	43
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	56*	56*	55*	55*	55*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	55*	50*	56*	53*	40	53*	48*	34
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	36	49	49	48	49	41	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	37	49	48	47	49	39	41	49	33	36	42	44	51	36	39	28
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	49	49	49	48	49	39	42	48	33	38	48	33	38
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	39	49	49	32	49	38	41	49	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	51*	56*	52*	40	55*	45	34	54*	37	45
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	53*	41	55*	44	33	54*	35	43	54*	46	38	52*	40	34	43	36	30
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	55*	55*	55*	54*	54*	52*	52*	52*	44	51*	51*	36
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	52*	57*	54*	43	54*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	42	52	52	34	52	45	45	52	38	40	50	33	35
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	41	52	52	36	52	46	46	52	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	35	51	45	46	50	36	40	49	47	35	40	42	31
			Exposed	52	52	52	52	52	52	52	52	52	52	52	47	52	52	39	52	52	34	52	48	48	52	36	40	48	35	37	40	30	32	35	26	43	31	29	38	28	21
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	58*	54	48	57*	51	37	56*	41	32	53	34	42	51	46	38
			Exposed	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	59*	56*	52	59*	54	47	59*	52	40	59*	42	32	56*	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	58*	58*	57*	56*	56*	54*	55*	55*	50	55*	53*	40	53*	47	34	48	39	45
			Exposed	61*	61*	61*	61*	61*	61*	60*	61*	61*	58*	61*	61*	56*	61*	58*	54*	60*	57*	52	56*	53*	41	53*	46	33	45	37	44	35	48	38	47	42	34	42	38	30
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	34	46	45	45	46	38	40
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	46	46	46	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	34	46	46	45	46	36	40	46	48	36
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46*	51*	51*	37	51*	41	32	51*	34	43
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	40	50*	48*	34
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	46	48	46	41	42
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	47	46	39	41	46	33	36	42	44	31
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	48	46	39	42
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	32	46	38	41	46	32	36	40	42	32	34	37	28
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	49*	37	45
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	41	51*	44*	33	51*	35	43	51*	46	38	50*	40	34	43	36	30
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	49*	49*	36
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43*	50*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	42	48	48	34	48	48	45	48	38	40	48	33	35
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	41	48	48	36	48	46	46	48	37	39	47	48	34	39	42	30	33	37	26	45	33	23
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	35	48	45	46	47	36	40	47	47	35	40	42	31
			Exposed	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34	48	48	48	48	36	40	48	47	35	37	40	30	32	35	26	43	31	29	38	28	21
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	53*	53*	48*	52*	51*	37	53*	41	32	52*	34	42	51*	46	38
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47	54*	54*	42	52*	40	54*	42	32	53*	44	36	48*	38	53*	33	42	52*	44	36	48*	34	39
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	52*	52*	52*	50*	51*	51*	40	49*	47*	34
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	53*	41	53*	46*	33	45	37	44	35	48	38	47	42	34	42	38	30
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	34	43	43	45	43	38	40
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	34	43	43	34	43	43	45	43	36	40
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	37	46*	46*	46*	46*	41*	32
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	34
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	48	43	41	42
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	47	43	39	41	43	33	36	44	31	28
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	48	43	39	42
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	32	43	38	41	43	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	45*	34	46*	37	45
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	44*	33	46*	35	43	46*	46	38	46*	40	34	43	36	30
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	35	44*	40*	46	39*	34	40	33	45	36
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	34	45	45	45	45	38	40	45	33	35
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	36	45	45	46	45	37	39	45	48	34	39	42	30	33	37	26	45	33	23	45	33	23
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	35	45	45	46	45	36	40	44	47	35	40	42	31
			Exposed	45	45	45	45	45	45	45	45	45	45	45	39	45	45	34	45	45	45	48	45	36	40	45	47	35	37	40	30	32	35	26	43	31	29	38	28	21
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	48*	50*	50*	37	49*	41	32	48*	34	42	47*	46	38
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	47*	50*	50*	40	50*	42	32	50*	33	42	50*	44	36	48*	38	32	39	34	28	34	30	25
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	33	45*	37	44	35	48	38
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	33	45*	37	44	35	48	38	47	42	34	42	38	30

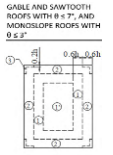
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

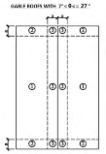
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

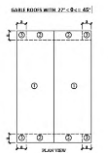
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

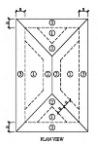












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

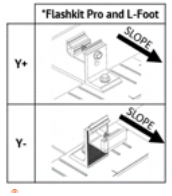
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	45	40	38	40		
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	34	43*	43*	45	43*	36	40	43*	48	36
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	32	41*	34	43			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	48	40	40	42		
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	47	40	39	41	40	33	36	40	44	51	36	39	29
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	48	43*	43*	37	43*	43*	42	43*	33	38
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39	43*	43*	32	43*	38	41	43*	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	34	41*	37*	45			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	33	41*	35*	43	41*	46	38	41*	40	34	41*	36	30			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	46	39*	34*	40	33*	45	36
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	34	43	43	45	43	38	40	43	33	35
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	36	43	43	46	43	37	39	43	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	35	43	43	46	43	36	40	43	47	35	40	42	31
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	34	43	43	48	43	36	40	43	47	35	37	40	30	32	35	26	43	31	29	38	28	21	
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	41*	32	45*	34	42	45*	46	38
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	42*	32	45*	33	42	45*	44	36	45*	38	32	39*	34	28	34	30	25
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	34	43*	39*	45
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	43	43*	37*	44	35	48	38	47	42	33	43*	37*	44
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	45	38	38	40		
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34	41*	41*	45	41*	36	40	41*	48	36
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	32*	37*	34*	43	
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	47	38	38	42			
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	47	38	38	41	38	33	36	38	44	51	36	39	29
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	48	41*	39*	42	41*	33	38			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	32	41*	38*	41	41*	32	36	40*	42	32	34	37	28	45	33	25
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	34*	37*	37*	45			
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	35*	43	37*	46	38	37*	40	34*	37*	36	30
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*	36*	34*	40	33*	45*	36
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	45	40	38	40	40	33	35
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	46	40	37	39	40	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	35	43*	43*	46	43*	36	40	43*	47	35	40	42	31
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39	43*	43*	34	43*	43*	48	43*	36	40	43*	47	35	37	40	30	32	35	26	43	31	29	38	28	21	
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	32	41*	34	42	41*	46	38
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	32	41*	33	42	41*	44	36	41*	38	32	39*	34	28	34	30	25
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	45
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	33*	39*	37*	44	35*	48	38	47	42	34	42	38	30

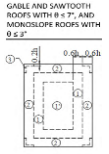
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

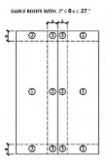
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

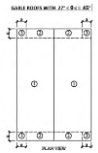
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

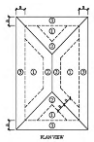












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

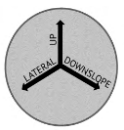
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

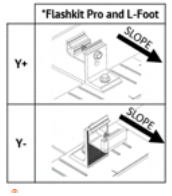
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	91	101	101	87	101	97	84	101	90	78	97	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	101	101	91	101	100	86	101	95	82	101	91	79	101	87	75	96	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	93	80	102	86	74	93	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	102	102	88	102	97	83	102	91	79	102	87	75	98	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	70	92	72	66	86	68	63	82	65	61
			Exposed	102	102	98	102	102	92	102	96	87	102	91	82	102	86	79	102	82	75	100	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	97	88	99	90	82	92	84	76	85	79	72	80	75	68	76	71	65
			Exposed	103	103	103	103	103	99	103	103	94	103	98	89	103	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	101	101	94	101	101	89	101	98	84	101	93	81	101	89	77	99	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	102	102	90	102	100	85	102	94	81	102	89	77	101	85	74	96	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	100	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	102	102	101	102	102	95	102	99	89	102	93	85	102	89	81	102	85	77	102	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	102	89	81	102	84	76	101	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	103	103	103	103	103	102	103	103	96	103	101	92	103	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	103	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	101	99	86	101	94	82	101	90	78	99	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	102	96	82	102	90	78	102	86	74	96	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	73	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	102	101	91	102	95	86	102	90	81	102	85	77	102	81	74	98	77	71	94	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	102	81	74	97	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	103	103	98	103	103	93	103	103	84	103	96	88	103	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	103	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	91	95	95	87	95	95	84	95	90	78	95	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	95	95	91	95	95	86	95	95	82	95	91	79	95	87	75	95	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	93	80	95	86	74	93	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	95	95	88	95	95	83	95	91	79	95	87	75	95	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	70	92	72	66	86	68	63	82	65	61
			Exposed	99	99	98	99	99	92	99	96	87	99	91	82	99	86	79	99	82	75	99	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	97	88	99	90	82	92	84	76	85	79	72	80	75	68	76	71	65
			Exposed	102	102	102	102	102	99	102	102	94	102	98	89	102	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	95	95	94	95	95	89	95	95	84	95	93	81	95	89	77	95	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	95	95	90	95	95	85	95	94	81	95	89	77	95	85	74	95	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	95	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	99	99	99	99	99	95	99	99	89	99	93	85	99	89	81	99	85	77	99	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	99	89	81	99	84	76	99	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	102	102	102	102	102	102	102	102	96	102	101	92	102	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	102	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	95	95	82	95	90	78	95	86	74	95	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	73	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	102	102	98	102	102	92	102	96	87	102	91	82	102	86	79	102	82	75	100	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
			Exposed	102	102	91	102	100	85	102	96	87	102	91	82	102	86	79	102	82	75	100	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	67	56	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	97	88	99	90	82	92	84	76	85	79	72	80	75	68	76	71	65
			Exposed	103	103	103	103	103	99	103	103	94	103	98	89	103	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	85	74	65	81	70	62	77	67	59
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	75	86	83	72	86	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	86	86	74	86	79	69	86	74	65	81	70	62	76	66	59	72	63	57
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	70	92	72	66	86	68	63	82	65	61
			Exposed	92	92	92	92	92	92	92	92	87	92	91	82	92	86	79	92	82	75	92	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	90	82	92	84	76	85	79	72	80	75	68	76	71	65
			Exposed	95	95	95	95	95	95	95	95	94	95	95	89	95	94	85	95	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	86	86	86	86	86	86	86	86	84	86	86	81	86	86	77	86	85	74	86	82	71	86	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	85	74	86	81	70	86	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	86	85	73	86	80	70	86	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	92	89	81	92	84	76	92	79	72	92	75	69	91	72	66	87	69	64	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	87	95	92	83	95	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	95	95	87	95	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	86	82	71	86	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	86	86	82	86	86	78	86	86	74	86	81	71	86	78	68	86	74	65	83	71	63	77	66	60	74	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	86	78	67	86	73	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	93	93	91	93	93	86	93	90	81	93	85	77	93	81	74	93	77	71	93	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	93	81	74	93	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	88	80	92	85	77	88	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

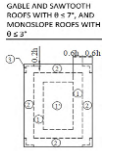
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

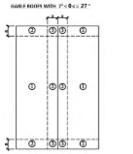
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

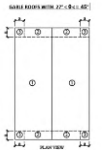
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

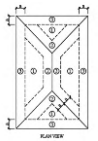












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

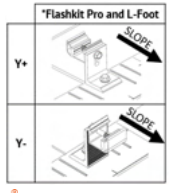
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	79	79	73	79	79	68	79	74	65	79	70	62	77	67	59
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	69	79	75	65	79	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	80	79	69	80	74	65	80	70	62	76	66	59	72	63	57
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	76	86	77	70	86	72	66	86	68	63	82	65	61
			Exposed	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	82	75	86	79	72	86	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	84	76	85	79	72	80	75	68	76	71	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	71	79	79	68	79	76	66	79	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	64	79	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	70	80	78	68	80	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	80	80	73	80	80	70	80	76	66	80	73	64	80	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	74	86	85	77	86	81	74	86	75	68	86	69	64	82	65	61	77	62	58	73	60	56
			Exposed	86	86	81	86	84	76	86	79	72	86	75	69	86	72	66	86	86	69	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	87	90	90	83	90	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57	62	59	57
			Exposed	90	90	87	90	90	82	90	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	73	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	88	88	88	88	88	86	88	88	81	88	85	77	88	81	74	88	77	71	88	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	88	81	74	88	76	70	88	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	88	80	91	85	77	88	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	91	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	74	65	78	70	62	77	67	59
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	75	65	78	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	65	78	70	62	76	66	59	72	63	57
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	70	82	72	66	82	68	63	81	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	66	82	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	84	76	83	79	72	80	75	68	76	71	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	76	66	78	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	64	78	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	70	78	78	68	78	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	78	78	73	78	78	70	78	76	66	78	73	64	78	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	75	82	82	68	82	79	72	82	82	71	82	82	69	64	82	60	63	54	58
			Exposed	82	82	81	82	82	76	82	79	72	82	75	69	82	72	66	82	69	64	82	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	84	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	86	86	86	86	86	82	86	86	78	86	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	73	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	83	83	83	83	83	83	83	83	81	83	83	77	83	81	74	83	77	71	83	74	68	83	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	83	81	74	83	76	70	83	73	66	83	69	64	83	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	87	87	80	87	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	65	74	70	62	74	67	59
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	65	74	70	62	74	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	65	74	70	62	74	66	59	72	63	57
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	62	74	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	70	78	72	66	78	68	63	77	65	61
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	73	78	78	72	78	68	63	78	64	60	75	61	57	71	59	55	67	56	53
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	76	80	79	72	79	75	68	76	71	65
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	82	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	63	74	67	60	73	64	57	69	61	55	66	59	60
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	64	74	71	62	74	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	68	74	74	68	74	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	74	74	73	74	74	70	74	74	66	74	73	64	74	69	62	74	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	68	78	69	64	77	65	61	76	62	58	73	60	56	69	57	54
			Exposed	78	78	78	78	78	76	78	78	72	78	75	69	78	72	66	78	69	64	78	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	81	81	81	74	79	76	69	76	72	65	71	68	62	67	64
			Exposed	82	82	82	82	82	82	82	82	78	82	82	75	82	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	76	66	76	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57	59	57
			Exposed	76	76	71	76	76	68	76	75	65	76	71	63	76	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	71	76	76	68	76	74	65	76	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	76	76	67	76	73	64	76	70	62	76	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	77	71	80	74	68	80	68	63	79	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	80	80	74	80	76	70	80	73	66	80	69	64	80	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	83	83	77	82	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56
			Exposed	84	84	80	84	84	76	84	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

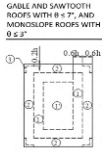
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

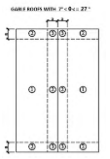
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

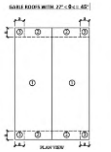
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

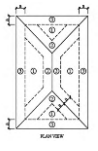












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

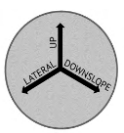
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

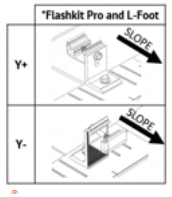
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	67	59			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	56	67	60	54	64	58	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	69	62	69	66	59	69	63	57			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	62	69	65	59	69	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	72	66	75	68	63	74	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	66	75	68	63	75	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	76	77	77	72	76	75	68	75	71	65
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	57	69	61	55	66	59	60	69	64	59			
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	64	69	69	62	69	69	61	69	69	61	69	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	63	69	67	60	69	63	57	68	61	55	64	58	60	62	56	58
			Exposed	69	69	69	69	69	69	69	69	66	69	69	64	69	69	62	69	66	60	69	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	59	54	56	49
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	68	75	69	64	74	65	61	73	62	58	72	60	56	69	57	54
			Exposed	75	75	75	75	75	75	75	75	72	75	75	69	75	72	66	75	69	64	75	66	62	75	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	65	71	68	62	67	64	59	64	62	57	
			Exposed	79	79	79	79	79	79	79	78	79	79	75	79	79	72	79	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57	
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	62	72	66	59	71	63	56	67	60	54	64	58	59	62	56	57	
			Exposed	72	72	71	72	72	68	72	72	65	72	71	63	72	69	61	72	66	59	72	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	65	72	71	63	72	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	72	72	67	72	72	64	72	70	62	72	67	60	72	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	68	63	76	64	60	75	61	57	71	59	55	67	56	60	64	54	58	
			Exposed	77	77	74	77	76	70	77	73	66	77	69	64	77	66	62	77	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	73	78	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54	
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	58	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	63	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	62	56
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	70	71	71	66	71	68	63
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	63	71	64	60	71	61	57	71	59	55	68	56	53
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	85*	85*	75	74	74	72	73	73	68
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	81*	76	72	76	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	61	64	64	57	64	61	54	64	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	63	57	64	61	55	64	58	60	62	56	58
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	69	64	71	71	71	68	71	69	60	56	62	58	69	64
			Exposed	71	71	71	71	71	71	71	71	71	71	71	69	71	71	66	71	69	64	71	66	62	71	62	59	71	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	75	75	74	74	74	69	72	72	65	71	68	62	67	64	59
			Exposed	81*	81*	81*	81*	81*	76	81*	81*	75	81*	76	72	81*	76	69	76	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57			
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	66	59	67	63	56	67	60	54	64	58	59	62	56	57
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	61	67	66	59	67	64	57	67	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	66	60	68	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	68	68	67	68	68	64	68	68	62	68	67	60	68	64	58	68	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	68	63	73	64	60	72	61	57	71	59	55	67	56	60	64	54	58
			Exposed	74	74	74	74	74	70	74	73	66	74	69	64	74	66	62	74	64	60	74	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	77	77	77	73	75	75	68	74	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	78	78	78	78	78	78	72	78	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54		
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	59
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	72*	73*	73*	68
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	67	73*	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	59	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	57	59	61	55	57	59	59
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69	74*	73*	68	72*	69	65
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	67	73*	70	64	69	66	61	65	63	58	63	61	56
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	56	63	60	54	63	58	59	62	56	57
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	59	63	63	57	63	60	54	63	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	54	63	63	57	63	60	54	62	57	59	61	55	55
			Exposed	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	62	56	63	63	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	63	70	64	60	69	61	57	67	59	55	66	56	60	64	54	58		
			Exposed	70	70	70	70	70	70	70	70	66	70	69	64	70	66	62	70	64	60	70	62	58	70	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	80*	80*	80*	80*	75	79*	79*	73	73	73	68	72	70	64	69	66	61	65	63	58	63	60	56	60	58	54
			Exposed	81*	81*	80*	81*	81*	76	81*	80*	72	81*	76	69	76	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

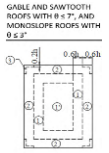
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

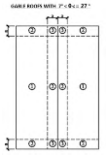
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

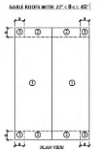
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

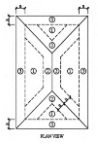












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

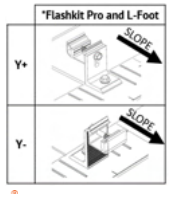
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59			
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59			
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	59	55	63	56	53
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	69*	69*	68*	68*	68*	67*	67*	65*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	67*	71*	70*	64*	69*	66*	61	66*	63	58	63	61	56
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	60
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57	57	61	55	57	59	59
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	57	57	55	57	57	60	57	56	58
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	55	57	57	60	55	56	58	52	54	56	49	
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	62	58	63	63	60	62	57	54
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	62	59	63	59	56	63	56	53	63	54	58	62	59	56	59	56	54	57	54	
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	68*	68*	68*	67*	67*	65*	65*	65*	62	66*	64*	59	64*	62	57
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	70*	68*	62	67*	64*	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	60	54	60	58	59	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	57	59	60	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	59	59	55	57	58	60	55
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	60	55	60	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	60	66	61	57	65	59	55	64	56	60	62	54	58
			Exposed	67	67	67	67	67	67	67	67	66	67	67	64	67	66	62	67	64	60	67	62	58	67	59	55	67	56	60	63	53	57	61	58	55	58	56	49	56	54	49
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	72*	72*	72*	73*	73*	68	72*	71*	64	67	66	61	65	63	58	63	60	56	60	58	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	69	74*	73*	66	73*	70	64	71*	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59	54	54	57
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	61*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	60	64*	61*	57	64*	59	55	64*	56	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	67*	66*	64*	64*	64*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	64*	67*	66*	61*	65*	63*	58*	63*	61*	56
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	61	55	54	59	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	58
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	60	55	54	58	52	54	56	49
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	62*	58	63*	60	56	62*	57	54
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	62*	59	64*	59	56	64*	56	53	64*	54	58	62*	59	56	59	57	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	65*	65*	65*	63*	63*	62*	62*	62*	60*	61*	61*	57
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	62*	66*	64*	59*	63*	61*	56	60*	58*	54	58*	56	59	56	54	57
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	56	57	60	54	56	58	51	61	55	46
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	59	57	55	57	56	60	55
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	55	57	57	59	57	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	62	59	55	61	56	60	60	54	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	62	58	63	59	55	63	56	60	63	53	57	61	58	55	58	56	59	56	54	49		
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	68*	68*	68*	66*	66*	64*	65*	65*	61	65*	63	58	62	60	56	60	58	54
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	71*	70*	64*	70*	67*	62	66*	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

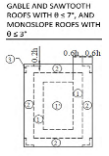
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

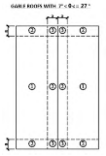
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

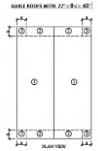
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

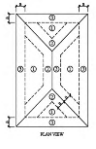












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

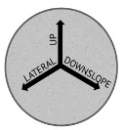
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

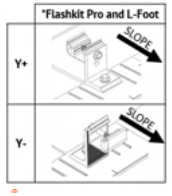
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	86	86	76	86	83	73	86	79	70	86	76	67	83	73	65	80	71	62	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	86	86	86	86	86	84	86	86	81	86	86	77	86	84	74	86	81	71	86	78	69	83	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	86	84	74	86	80	71	86	76	68	84	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	84	77	87	81	75	87	75	70	86	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	86	79	87	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	87	87	85	87	87	81	87	85	78	87	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	85	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	66	82	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	82	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	87	87	82	87	85	78	87	81	75	87	78	72	87	75	69	87	72	66	84	69	64	79	65	60	74	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	87	74	69	87	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	76	86	80	74	82	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	86	80	73	82	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	86	82	73	86	79	69	86	75	67	82	73	64	79	70	62	76	67	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	79	70	62	76	67	59	72	64	57	70	62	54	67	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	86	79	70	86	76	67	83	72	64	79	69	62	76	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	76	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	87	82	76	87	78	73	87	75	70	87	72	67	84	69	64	81	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	84	69	64	80	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	30
		27-45	Interior	87	87	81	87	84	77	86	81	74	83	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
10	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	63	76	67	59	72	64	56	69	61	54	66	58	51
			Exposed	81	81	76	81	81	73	81	79	70	81	76	67	81	73	65	80	71	62	77	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	71	81	78	69	81	73	64	78	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	81	81	74	81	80	71	81	76	68	81	73	65	80	70	62	77	68	60	74	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	84	84	77	84	81	75	84	75	70	84	71	65	81	67	62	77	63	59	73	60	56	70	57	53
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	65	82	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	79	86	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	86	86	85	86	86	81	86	85	78	86	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	81	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	81	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	66	81	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	81	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	84	84	82	84	84	78	84	81	75	84	78	72	84	75	69	84	72	66	84	69	64	79	65	60	74	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	84	74	69	84	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	86	86	86	86	86	86	86	86	83	76	86	80	74	82	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44		
			Exposed	86	86	85	86	86	81	86	85	78	86	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	D	0-7	Interior	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	81	72	64	79	70	62	74	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	81	75	66	81	72	63	78	69	61	75	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	66	81	72	64	79	69	62	76	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	81	72	64	78	69	61	75	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	84	84	82	84	84	78	84	81	75	84	78	72	84	75	69	84	72	66	84	69	64	79	65	60	74	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	84	74	69	84	71	66	83	68	63	80	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	86	86	86	86	86	86	86	86	83	76	86	80	74	82	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44		
			Exposed	86	86	85	86	86	81	86	85	78	86	81	75	84	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	63	73	67	59	72	64	56	69	61	54	66	58	51
			Exposed	73	73	73	73	73	73	73	73	70	73	73	67	73	73	65	73	71	62	73	68	60	73	64	57	68	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	73	73	64	73	68	61	73	64	57	69	61	54	66	58	52	63	55	43
			Exposed	73	73	73	73	73	71	73	73	68	73	73	65	73	70	62	73	68	60	73	65	58	70	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	75	78	75	70	78	71	65	78	67	62	77	63	59	73	60	56	70	57	53
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	65	78	68	63	77	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	69	78	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41	53	47	36
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	70	62	73	66	58	70	62	55	66	59	52	63	56	43	60	53	38	57	49	34
			Exposed	73	73	66	73	72	63	73	69	61	73	66	58	72	64	56	69	62	54	67	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	69	62	73	67	59	71	63	56	67	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	73	72	64	73	69	61	73	66	58	72	63	56	69	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	66	78	69	64	78	65	60	74	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	78	74	69	78	71	66	78	68	63	78	65	61	76	63	58	74	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	81	81	81	81	81	81	81	81	80	81	81	76	81	80	74	81	77	71	79	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	81	80	73	81	76	70	78	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	64	73	70	62	73	67	60	73	65	58	69	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	73	70	62	73	67	59	72	64	57	70	62	54	67	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	73	73	70	73	73	67	73	72	64	73	69	62	73	67	59	73	64	57	71	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	73	67	59	73	64	57	69	61	54	67	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	76	79	78	73	79	75	70	79	72	67	79	69	64	79	67	62	78	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	79	69	64	79	66	61	77	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	30
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	77	71	79	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	79	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

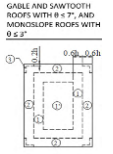
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

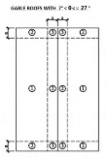
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

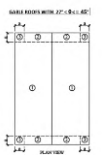
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

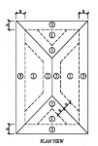












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

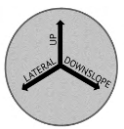
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

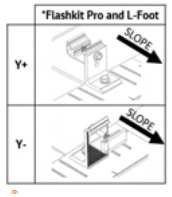
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	56	65	61	54	65	58	51
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60	65	64	57	65	61	53	65	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	61	54	66	57	66	61	54	66	58	52	63	55	43
			Exposed	66	66	66	66	66	66	66	66	66	66	66	65	66	66	62	66	66	60	66	65	58	66	61	54	65	58	51	62	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	71	65	73	67	62	73	63	59	73	60	56	70	57	53
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	65	73	68	63	73	63	59	72	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	70	76	72	66	72	68	63	69	65	60	65	62	57
			Exposed	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	58	65	65	58	65	65	58	65	59	52	63	56	43	60	53	38	57	49	34
			Exposed	65	65	65	65	65	63	65	65	61	65	65	58	65	64	56	65	62	54	65	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	63	56	66	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	66	66	64	66	66	61	66	66	58	66	63	56	66	61	54	66	59	52	64	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	66	73	69	64	73	65	60	73	61	56	70	57	53	66	55	48	63	52	40	60	44	36
			Exposed	73	73	69	73	71	66	73	68	63	73	65	61	73	63	58	73	61	56	71	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	74	68	74	70	64	70	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	76	76	73	76	76	70	76	73	67	75	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	65	65	62	65	65	59	65	64	57	65	62	54	65	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	74	69	64	74	66	61	74	63	59	74	61	56	71	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	77	71	78	74	68	76	72	66	74	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	78	74	68	76	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	56	63	61	54	63	58	51
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	57	63	61	53	63	57	49	61	55	41	59	52	36	56	46	48
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	54	63	58	52	63	55	43
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	63	54	63	58	48	63	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	62	68	63	59	68	60	56	68	57	53
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	63	59	68	60	55	68	56	52	65	53	44	62	49	38	59	41	34
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	72	72	66	70	68	63	73	70	65	62	59	57
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	68	63	68	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	62	55	63	59	52	63	56	43	60	53	38	57	49	34
			Exposed	63	63	63	63	63	63	63	63	61	63	63	58	63	63	56	63	62	54	63	60	53	63	56	44	59	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	56	63	59	52	63	56	44	60	53	38	57	47	33	54	40	45
			Exposed	63	63	63	63	63	61	63	63	58	63	63	56	63	61	54	63	59	52	63	57	47	60	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	62	68	63	59	68	60	56	68	57	53	68	56	53
			Exposed	68	68	68	68	68	66	68	68	63	68	65	61	68	63	58	68	61	56	68	58	54	67	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	68	71	70	64	69	66	60	66	62	57	62	59	54	59	56	52	57	54	44
			Exposed	73	73	73	73	73	70	73	73	67	73	70	65	72	68	62	69	65	60	67	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	50	62	55	41	59	52	36	56	45	48	53	40	42
			Exposed	65	65	62	65	65	59	65	64	57	65	62	54	65	59	53	65	57	49	63	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	59	66	64	57	66	62	55	66	58	52	62	55	42	59	52	36	56	43	48	53	38	42	48	33	38
			Exposed	66	66	59	66	64	57	66	61	54	66	59	52	64	57	47	62	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	67	70	69	64	70	67	62	70	64	60	70	60	56	69	57	53	65	54	45	62	49	38	59	41	34	56	36	45
			Exposed	70	69	64	70	66	61	70	63	59	70	61	56	70	58	54	69	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	72	66	73	69	64	69	65	60	65	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	74	74	68	74	71	65	72	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	51
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	41	58	52	36	56	46	48
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	57	59	59	54	59	58	52	58	55	43
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	54	59	58	51	59	54	41	58	52	36	56	43	48	53	38	43
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	60	56	63	57	53
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	56	52	63	53	44	62	49	38	59	41	34
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	66	69*	68*	63	67*	64	60	63	62	57
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	68*	63	68*	64	59	64	61	56	61	58	53	58	55	48	55	53	41
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	43	58	53	38	57	49	34
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	53	58	56	44	58	53	37	56	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	59	52	58	56	44	57	53	38	56	47	33	54	40	45
			Exposed	59	59	59	59	59	59	59	59	58	59	59	56	59	59	54	59	59	52	59	57	47	59	53	38	56	46	33	53	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	56	63	57	53	62	55	48	61	52	40	59	44	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	61	63	63	58	63	61	56	63	58	54	63	55	49	63	52	40	59	42	34	56	36	45	54	48	40	51	43	36
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	70*	70*	64	67*	65	60	63	62	57	61	59	54	59	56	52	57	54	44
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	69*	65	69*	68*	62	69*	65	60	67*	63	58	63	59	54	59	56	51	56	53	41	53	47	36	47	40	48	40	36	43
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54	61	58	50	61	55	41	59	52	36	56	45	48	53	40	42
			Exposed	61	61	61	61	61	59	61	61	57	61	61	54	61	59	53	61	57	49	61	56	43	59	52	36	56	44	47	53	38	41	47	33	36	40	44	31	36	39	28
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	55	61	58	52	60	55	42	59	52	36	56	43	48	53	38	42	48	33	38	48	33	38
			Exposed	61	61	59	61	61	57	61	61	54	61	59	52	61	57	47	61	55	41	60	53	38	56	44	48	53	37	41	45	48	36	38	42	32	34	37	28	45	33	25
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	64	60	66	60	56	65	57	53	63	54	45	62	49	38	59	41	34	56	36	45
			Exposed	66	66	64	66	66	61	66	63	59	66	61	56	66	58	54	66	56	52	66	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	74*	75*	75*	71	75*	75*	68	74*	70	66	69	69	64	67	65	60	64	61	56	61	58	53	58	55	48	55	53	41	53	47	36
			Exposed	75*	75*	68	75*	71	65	71	68	63	70	66	60	67	63	58	64	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36

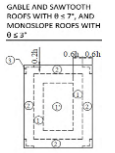
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

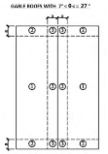
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

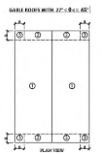
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

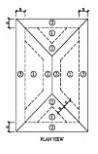












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

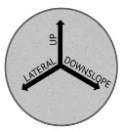
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

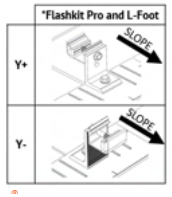
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	49	54	54	41	54	52	36	54	46	48
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	54	43
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	41	54	52	36	54	43	48	53	38	43
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	62*	59	62*	60*	56	62*	57	53
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	60*	55	62*	56	52	62*	53	44	62*	49	38	59	41	34
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	63*	61*	61*	60*	60*	60*	57*	60*	57*	53
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	59*	64*	61*	56	61*	58*	53	58*	55	48	55	53	41
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	43	54	54	53	38	54	49
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	44	54	53	37	54	47	49	54	40	43	50	35	38	43	47	33
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	44	54	53	38	53	47	33	52	40	45			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	47	54	53	38	54	46	33	53	38	43	48	34	38	40	45	33	36	40	90	
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	61*	56	62*	57	53	61*	55	48	57	52	40	56	44	36			
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	62*	62*	58	62*	61*	56	62*	58	54	62*	55	49	62*	52	40	59	42	34	56	36	45	54	48	40	51	43	36		
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	63*	62*	62*	60*	60*	60*	57*	58*	58*	54	59*	56	52	57*	54	44			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	60*	65*	63*	58*	63*	59*	54	59*	56	51	56	53	41	53	47	36	47	40	48	40	36	43			
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	50	56	55	41	56	52	36	56	45	48	53	40	42
			Exposed	56	56	56	56	56	56	56	56	56	54	56	56	53	56	56	49	56	56	43	56	52	36	56	44	47	53	38	41	47	33	36	40	44	91	36	39	90		
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	52	56	55	42	55	52	36	54	43	48	53	38	42	48	33	38	
			Exposed	57	57	57	57	57	57	57	57	57	52	57	57	47	57	55	41	57	53	38	56	44	48	53	37	41	45	48	36	38	42	92	34	37	90	45	33	90		
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	60	56	61	57	53	60	54	45	59	49	38	57	41	34	56	36	45	
			Exposed	62	62	62	62	62	62	59	62	61	56	62	58	54	62	56	52	62	54	48	62	50	39	59	40	33	55	35	43	53	46	38	47	40	34	40	36	90		
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	66*	66*	65*	65*	64*	66*	65*	60	63*	61	56	59	58	53	57	55	48	55	53	41	53	47	36		
			Exposed	67*	67*	67*	67*	67*	65*	67*	67*	63*	67*	66*	60	67*	63*	58	65*	61	56	62	59	54	58	55	49	55	52	40	52	44	35	42	38	46	37	34	40	33	45	36	
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	41	50	50	36	50	46	48
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	36	50	43	48	50	38	43
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	55*	56*	56*	52*	56*	53*	44	56*	49	38	56*	41	34
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	57*	57*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	59*	58*	53*	58*	55*	48	55*	53*	41
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	38	50	49	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	37	50	47	49	50	40	43	50	35	38	43	47	33
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	38	50	46	33	50	38	43	48	34	38	40	45	33	36	40	90
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*	57*	55*	48	56*	56*	40	55*	44	36
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	54*	56*	55*	49	56*	52*	40	56*	42	34	56*	36	45	54*	48	40	51	43	36	
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	57*	57*	56*	56*	54*	54*	52*	53*	53*	44	
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	55*	59*	56*	51*	56*	53*	41	53*	47	36	47	40	48	40	36	43		
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	41	52	52	36	52	45	48	52	40	42
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	43	52	52	36	52	44	47	52	38	41	47	33	36	40	44	91	36	39	90	
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	42	52	52	36	52	43	48	51	38	42	48	33	38	
			Exposed	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	41	53	53	38	53	44	48	53	37	41	45	48	36	38	42	92	34	37	90	45	33	90		
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	60*	56	60*	57	53	59*	54	45	58*	49	38	55	41	34	53	36	45
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	59*	61*	61*	56	61*	58*	54	61*	56	52	61*	54	48	61*	50	39	59*	40	33	55	35	43	53	46	38	47	40	34	40	36	90
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	62*	60*	60*	60*	59*	59*	56*	57*	57*	53	57*	55*	48	55*	53	41	52	47	36
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	60*	64*	63*	58*	63*	61*	56*	62*	59*	54	58*	55*	49	55*	52	40	52	44	35	42	38	46	37	34	40	33	45	36	
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	47	47	46	48
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	36	47	47	43	48	47	38
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	49*	38	52*	41	34
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	41
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	38	47	47	34
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	47	47	47	49	47	40	43	47	35	38	43	47	33
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	47	33	47	40	45
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	34	38	43	47	33	36	40	90
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	40	51*	44	36
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	52*	40	52*	42	34	52*	36	45	52*	48	40	51*	43	36
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	51*	44*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41	52*	47*	36	47*	40	48	40	36	43
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	36	49	45	48	49	40	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	36	49	44	47	49	38	41	47	33	36	40	44	91	36	39	90	
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	50	36	49	43	48	48	38	42	47	33	38
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	38	50	44	48	50	37	41	45	48	36	38	42	92	34	37	90	45	33	90		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	49	57*	54*	45	55*	49	38	54*	41	34
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	54*	48	55*	50	39	55*	40	33	55*	35	43	53*	46	38	47	40	34	40	36	90	
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	56*	56*	55*	55*	53*	53*	53*	49*	52*	52*	41	50*	47	36
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	54*	58*	55*	49*	55*	52*	40	52*	44	35	42	38	46	37	34	40	33	45	36	

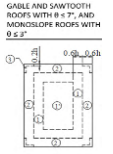
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

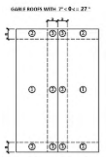
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

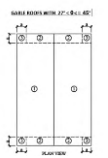
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

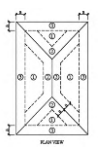












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

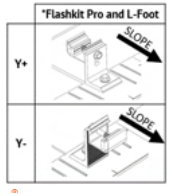
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	36	44	44	48
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	36	45	43	48	45	38	43
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	38	49*	41	34
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	44	44	44	34
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	37	44	44	49	44	40	43	44	35	38	43	47	33
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	38	45	45	33	45	40	45	45	40	45
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33	45	38	43	45	34	38	40	45	33	36	40	90
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	40	49*	49*	40	49*	49*	40	49*	44*	36	49*	44*	36
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	40	49*	42*	34	49*	36	45	49*	46	40	49*	43	36
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	36	47*	47*	40*	48	40*	36	43
	D	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	36	47	45	48	47	40	42
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	38	41	47	33	36	40	44	91	36	39	88
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	36	47	43	48	46	38	42	46	33	38
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	48	47	37	41	45	48	36	38	42	92	34	37	88	45	33	85
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45	51*	49*	38	50*	41	34	49*	36	45
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43	51*	46	38	47*	40	34	40	36	90
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	51*	48*	50*	50*	41	49*	47*	36
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	52*	40	52*	44*	35	42	38	46	37	34	40	33	45	36
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	42	42	42	36	42	42	48
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41	45*	45*	36	45*	42	48	45*	38	43
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	38*	45*	45*	38*	45*	41*	34
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	34
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	49	42	40	43	42	35	38	42	47	33
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42	45*	45*	42	45*	45*	38	45*	45*	33	45*	40	45
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	45*	33	45*	38	43	45*	34	38	40	45	33	36	40	90
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	42*	34	45*	36	45	45*	48	40	45*	43	36
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	42*	41*	42*	42*	36*	42*	40*	48	40*	36*	43
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	44	44	44	36	44	44	48	44	40	42
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	36	44	44	47	44	38	41	44	33	36	40	44	91	36	39	88
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	36	45	43	48	45	38	42	45	33	38
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	38	45	44	48	45	37	41	45	48	36	38	42	92	34	37	88	45	33	85
		7-20	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	39	49*	49*	38	48*	41	34	47*	36	45
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	40	49*	49*	35	49*	43	49*	46	38	47*	40	34	40	36	90
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	39	49*	40	33	49*	35	43
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	39	49*	40	33	49*	35	43
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	36
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	36

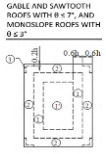
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

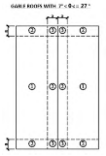
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

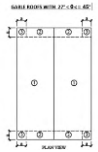
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

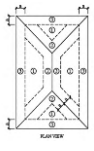












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

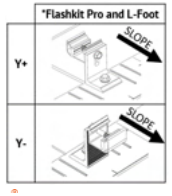
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	92	102	102	88	102	98	85	102	91	78	98	85	73	92	79	69	86	75	65	81	71	62	77	68	60
			Exposed	102	102	92	102	101	87	102	96	83	102	92	79	102	88	76	97	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	94	81	102	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	102	102	89	102	98	84	102	92	80	102	88	76	99	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	82	103	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	103	103	99	103	103	93	103	97	88	103	92	83	103	87	79	103	83	76	101	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	97	103	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	103	103	103	103	103	100	103	103	95	103	99	90	103	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	102	102	95	102	102	90	102	98	85	102	94	81	102	90	78	100	86	75	96	83	72	89	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	102	90	78	99	85	74	94	81	70	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	102	102	91	102	101	86	102	95	82	102	90	78	102	86	74	97	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58
			Exposed	102	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	103	103	102	103	103	96	103	100	90	103	94	86	103	90	82	103	86	78	103	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	103	90	81	103	85	77	102	80	73	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	60	56	60	58	54	
		27-45	Interior	103	103	103	103	103	103	103	103	97	103	102	92	103	97	88	102	93	84	98	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	103	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	102	100	87	102	95	82	102	91	78	100	87	75	96	83	72	92	80	69	88	77	66	82	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57
			Exposed	96	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	102	97	83	102	91	79	102	87	75	97	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	103	102	92	103	96	87	103	91	82	103	86	78	103	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	103	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	85	95	91	78	95	85	73	92	79	69	86	75	65	81	71	62	77	68	60	
			Exposed	95	95	92	95	95	87	95	95	83	95	92	79	95	88	76	95	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	94	81	96	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	58
			Exposed	96	96	89	96	96	84	96	92	80	96	88	76	96	84	72	94	80	69	90	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	82	100	84	76	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	100	100	99	100	100	93	100	97	88	100	92	83	100	87	79	100	83	76	100	80	73	93	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	97	102	98	89	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	102	102	102	102	102	100	102	102	95	102	99	90	102	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	81	95	90	78	95	86	75	95	83	72	89	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	95	90	78	95	85	74	94	81	70	90	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	96	96	91	96	96	86	96	95	82	96	90	78	96	86	74	96	82	71	92	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58
			Exposed	96	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	100	100	100	100	96	100	100	90	100	94	86	100	90	82	100	86	78	100	82	75	96	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54	
			Exposed	100	90	81	100	85	77	100	80	73	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	102	102	102	102	102	102	102	102	97	102	102	92	102	97	88	102	93	84	98	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	102	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	95	95	87	95	95	82	95	91	78	95	87	75	95	83	72	92	80	69	88	77	66	82	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57
			Exposed	95	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	96	96	83	96	91	79	96	87	75	96	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	101	101	92	101	96	87	101	91	82	101	86	78	101	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	101	82	74	98	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	64	54	50
		27-45	Interior	103	103	99	103	103	94	103	98	89	103	94	85	98	89	81	93	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	97	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	78	86	85	73	86	79	69	86	75	65	81	71	62	77	68	60	
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	76	86	84	73	86	81	70	86	75	65	81	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	81	87	87	75	87	80	70	87	75	65	82	70	62	77	66	60	73	64	58
			Exposed	87	87	87	87	87	84	87	87	80	87	87	76	87	84	72	87	80	69	87	76	67	82	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	82	92	84	76	92	78	71	92	73	67	87	69	64	83	65	61
			Exposed	92	92	92	92	92	92	92	92	88	92	92	83	92	87	79	92	83	76	92	80	73	92	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	91	83	93	85	77	86	80	73	81	76	69	76	72	65
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	80	75	71	64	70	67	61	66	64	59	63	61	57		
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	86	75	86	83	72	86	77	67	83	72	63	78	68	60	73	65	58	70	62	55	66	59	53
			Exposed	86	86	78	86	85	74	86	81	70	86	78	67	86	75	65	82	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	87	87	87	87	87	86	87	87	82	87	87	78	87	86	74	87	82	71	87	79	68	85	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58
			Exposed	87	86	74	87	81	70	87	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	86	92	90	82	92	86	78	92	82	75	92	75	69	89	70	64	83	66	61	78	63	59	74	60	56	70	58	54
			Exposed	92	90	81	92	85	77	92	80	73	92	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	92	96	96	88	96	93	84	96	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58
			Exposed	96	96	88	96	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	75	86	83	72	86	80	69	86	77	66	82	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57
			Exposed	86	83	72	86	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	87	87	83	87	87	79	87	87	75	87	82	71	87	79	68	87	75	65	84	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55
			Exposed	87	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	94	94	92	94	94	87	94	91	82	94	86	78	94	82	75	94	78	71	94	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59
			Exposed	94	82	74	94	77	71	93	73	67	89	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	97	97	97	97	97	89	97	94	85	97	89	81	93	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	60	58	54	57	55	59
			Exposed	97	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

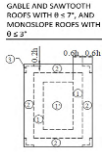
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

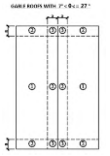
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

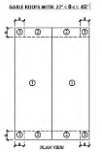
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

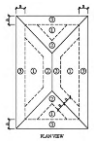












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

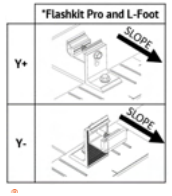
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	71	80	79	69	80	75	65	80	71	62	77	68	60
			Exposed	80	80	80	80	80	80	80	80	80	80	80	79	80	80	76	80	80	73	80	80	70	80	75	65	80	71	62	76	66	59	72	63	57	68	61	54	65	58	60
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	70	62	77	66	60	73	64	58			
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	72	80	80	69	80	80	76	67	80	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57			
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	84	76	87	78	71	87	82	73	67	87	69	64	83	65	61			
			Exposed	87	87	87	87	87	87	87	87	87	87	87	83	87	87	79	87	83	76	87	80	73	87	73	67	87	68	63	81	64	60	76	61	58	72	59	55	68	57	53			
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	85	90	85	77	86	80	73	81	76	69	76	72	65			
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57						
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	77	67	80	72	63	78	68	60	73	65	58	70	62	55	66	59	53			
			Exposed	80	80	78	80	80	74	80	80	70	80	78	67	80	75	65	80	72	63	79	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53			
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	74	80	80	71	80	79	68	80	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58			
			Exposed	80	80	74	80	80	70	80	77	67	80	73	64	80	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	58			
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	87	87	87	82	87	86	78	87	82	75	87	75	69	87	70	64	83	66	61	78	63	59	74	60	56	70	58	54			
			Exposed	87	87	81	87	85	77	87	80	73	87	76	70	87	73	67	87	70	64	85	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	81	89	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58			
			Exposed	90	90	88	90	90	83	90	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57			
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55			
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	88	88	88	88	88	87	88	88	82	88	86	78	88	82	75	88	78	71	88	75	68	88	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59			
			Exposed	88	82	74	88	77	71	88	73	67	88	70	64	85	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	86	77	89	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	92	89	81	92	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	65	78	71	62	77	68	60			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	75	65	78	71	62	76	66	59	72	63	57	68	61	54	65	58	60			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	70	62	77	66	60	73	64	58			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	72	78	78	69	78	76	67	78	71	63	76	66	59	71	63	57	67	60	54	64	57	60	61	55	57			
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	78	71	82	73	67	82	69	64	82	65	61			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	76	82	80	73	82	73	67	82	68	63	81	64	60	76	61	58	72	59	55	68	57	53			
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	85	77	84	80	73	81	76	69	76	72	65			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57						
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	63	78	68	60	73	65	58	70	62	55	66	59	53			
			Exposed	78	78	78	78	78	74	78	78	70	78	78	67	78	75	65	78	72	63	78	69	61	74	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	71	78	78	68	78	73	64	78	68	61	73	64	58	69	61	55	65	58	53	62	56	58			
			Exposed	78	78	74	78	78	70	78	77	67	78	73	64	78	70	62	78	67	60	75	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50			
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	78	71	82	73	67	82	69	64	82	65	61			
			Exposed	82	82	81	82	82	77	82	80	73	82	76	70	82	73	67	82	70	64	82	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	81	85	83	75	82	77	70	77	72	65	72	68	62	68	65	60	65	62	58						
			Exposed	86	86	86	86	86	83	86	86	79	86	84	76	86	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	75	80	80	72	80	80	69	80	77	66	80	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57			
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	71	80	79	68	80	75	65	80	72	63	77	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55			
			Exposed	80	78	68	80	74	65	80	71	63	78	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	84	84	84	84	84	84	84	84	82	84	84	78	84	82	75	84	78	71	84	75	68	84	69	64	82	65	61	76	62	58	72	59	55	68	57	53	65	54	59			
			Exposed	84	82	74	84	77	71	84	73	67	84	70	64	84	67	62	81	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	88	88	88	88	88	88	88	88	88	88	88	85	88	88	81	87	86	77	86	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	88	88	81	88	85	76	87	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	65	74	71	62	74	68	60			
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	62	74	66	59	72	63	57	68	61	54	65	58	60						
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	70	62	75	66	60	73	64	58			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	72	75	75	69	75	75	67	75	75	67	75	71	63	75	66	59	71	63	57	67	60	54	64	57	60	61	55	57			
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	71	78	73	67	78	69	64	78	65	61			
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	64	78	67	62	78	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	81	75	80	77	70	77	72	65	72	68	62	68	65	60			
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	C	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	66	76	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57			
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	65	76	72	63	76	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55					
			Exposed	76	76	68	76	74	65	76	71	63	76	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	71	80	75	68	80	69	64	80	65	61	76	62	58	72	59	55	68	57	53	65	54	59					
			Exposed	80	80	74	80	77	71	80	73	67	80	70	64	80	67	62	80	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	77	83	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	84	84	81	84	84	76	84	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	66	76	71	63	76	67	59	72	63	57	68	61	54	65	58	60	62	56	57					
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47			
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	65	76	72	63	76	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55					
			Exposed	76	76	68	76	74	65	76	71	63	76	67	60	75	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42			
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	71	80	75	68	80	69	64	80	65	61	76	62	58	72	59	55	68	57	53	65	54	59					
			Exposed	80	80	74	80	77	71	80	73	67	80	70	64	80	67	62	80	64	60	78	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50			
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	77	83	82	74	81	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54			
			Exposed	84	84	81	84	84	76	84	81	73	82	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54			

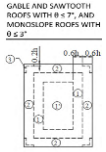
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

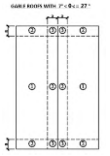
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

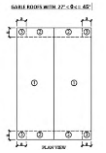
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

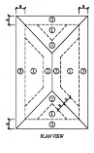












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

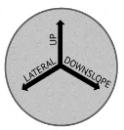
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

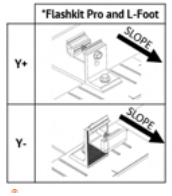
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	68	60			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	57	68	61	54	65	58	60
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	62	70	66	60	70	64	58			
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70	70	67	70	70	63	70	66	59	70	63	57	67	60	54	64	57	60	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	73	67	75	69	64	75	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	73	67	75	68	63	75	64	60	75	61	58	72	59	55	68	57	53
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	65
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	60	69	65	58	69	62	55	66	59	53
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	65	69	69	63	69	69	61	69	65	58	69	61	55	65	59	60	62	56	57	60	54	55	57	59	53			
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	64	70	68	61	70	64	58	69	61	55	65	58	53	62	56	58
			Exposed	70	70	70	70	70	70	70	70	67	70	70	64	70	70	62	70	67	60	70	65	59	69	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	58
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	64	75	66	61	74	63	59	73	60	56	70	58	54
			Exposed	75	75	75	75	75	75	73	75	75	70	75	73	67	75	70	64	75	70	67	75	63	59	73	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	72	65	72	68	62	68	65	60	65	62	58	
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	72	80	77	69	78	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	71	63	73	67	59	72	63	57	68	61	54	65	58	60	62	56	57	
			Exposed	73	73	72	73	73	68	73	73	65	73	72	63	73	69	61	73	67	59	73	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	73	73	73	73	73	73	73	73	73	71	73	73	68	73	73	65	73	72	63	73	67	60	72	63	57	67	60	54	64	57	60	61	55	57	59	53	55		
			Exposed	73	73	68	73	73	65	73	71	63	73	67	60	73	65	59	71	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	71	77	75	68	77	69	64	76	65	61	75	62	58	72	59	55	68	57	53	65	54	59	
			Exposed	77	77	74	77	77	71	77	73	67	77	70	64	77	67	62	77	64	60	77	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	60	54	50
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77	80	80	74	78	76	69	75	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81	81	81	81	81	76	81	81	73	81	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	63	57	65	61	54	65	60
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60	65	64	58
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	60	54	64	57	60	61	55
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	64	72	65	61
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	68	63	72	64	60	72	61	58	72	59	55	68	57	53
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	75	75	73	74	74	69	73	72	65			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	62	55	65	59	53
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	61	65	65	58	65	61	55	65	59	60	62	56	57	60	54	55	57	59	53
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	61	65	64	58	65	61	55	64	58	53	62	56	58
			Exposed	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	59	65	61	55	65	58	53	61	55	58	59	53	55	56	58	53	54	56	50		
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	66	61	71	63	59	70	64	60	56	68	58	54		
			Exposed	72	72	72	72	72	72	72	72	70	72	72	67	72	70	64	72	67	62	72	63	59	72	60	56	69	57	53	65	54	59	62	60	56	60	58	54			
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	75	74	74	70	73	72	65	72	68	62	68	65	60	65	62	58	
			Exposed	77	77	77	77	77	77	77	77	76	77	77	72	77	77	69	77	74	67	72	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58			
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	63	68	63	57	68	63	57	68	61	54	65	59	60	62	56	57	
			Exposed	68	68	68	68	68	68	68	68	65	68	68	63	68	68	61	68	67	59	68	64	57	68	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	68	63	57	67	60	54	64	57	60	61	55	57	59	53	55		
			Exposed	68	68	68	68	68	65	68	68	63	68	67	60	68	65	59	68	63	57	68	61	55	64	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	69	64	74	65	61	73	62	58	72	59	55	68	57	53	65	54	59
			Exposed	74	74	74	74	74	71	74	74	70	74	74	67	74	74	64	74	74	60	74	62	59	72	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	77	77	77	74	76	76	69	74	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	79	79	79	79	76	73	79	79	77	70	78	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54		
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60			
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	54	61	58	60
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58			
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	59	61	61	57	61	55	57
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	68	68	68	67	68	68	64	68	68	59	55	68	57
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	74*	75*	75*	73*	74*	74*	69	73*	70	65
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	75*	74*	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	55	61	59	53
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	60	61	56	57	60	54	55	57	59	53
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	58	53	60	56	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	58	53	60	56	55	58	53	54	56	50	
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	67	62	68	63	59	68	60	56	68	57	53	65	54	59	68	57	53
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72	75*	75*	69	74*	74*	67	73*	68	63	67	64	60	64	61	57	61	59	54	58	56	60	56	54	58
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	75*	74*	74*	70	73*	73*	65	69	68	62	67	65	60
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	59	64	64	63	57	64	61	54	64	58	60	62	56
			Exposed	64	64	64	64	64	64	64	64	64	64	64	63	64	64	61	64	64	59	64	64	57	64	64	61	54	64	58	59	61	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	64	60	64	63	57	64	60	54	60	61	55
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	64	60	64	64	60	64	63	57	64	60	54	60	61	55
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	69	64	71	65	61	70	62	58	68	59	55	67	57	53	65	54	59
			Exposed	71	71	71	71	71	71	71	71	67	71	70	64	71	67	62	71	64	60	71	62	59	71	59	56	68	56	53	64	54	58	61	59	55	59	56	53	56	54	50
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	83*	83*	76	82*	82*	74	74	74	69	72	71	64	70	67	62	66	64	59	63	61	56	61	59	54
			Exposed	81*	81*	81*	81*	81*	76	81*	81*	73	81*	77	70	76	74	67	75	71	64	72	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

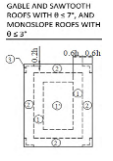
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

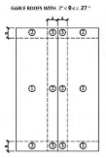
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

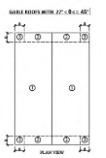
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

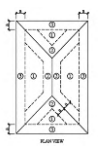












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

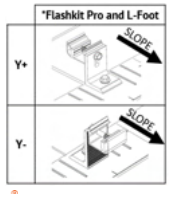
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60			
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	57	60	58	55	57
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	61	58	64	59	55	64	57	53
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	70*	70*	69*	69*	69*	68*	68*	65
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	71*	64	70*	67*	61	66*	64	59	63	61	57
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	56	57	57	54	55	57	59	53
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	58	58	56	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	53	58	55	58	58	53	55	56	58	53	54	56	50
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	64	61	64	63	59	64	60	56	63	58	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	63	59	64	60	56	64	57	53	64	54	59	62	60	56	60	58	54
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	68*	68*	65	69*	68*	62	67*	65	60	63	62	58	
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	69*	72*	72*	67*	71*	69*	63	67*	64	60	64	61	57	61	59	54	58	56	60	56	54	58
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	60	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	59	60	55	57	59	53	54	56	58	52	54	56	47
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	60	54	61	57	60	60	55	57	59	53	55
			Exposed	61	61	61	61	61	61	61	61	61	61	61	60	61	61	59	61	61	57	61	61	55	61	58	60	61	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	65	59	55	64	57	53	63	54	59
			Exposed	67	67	67	67	67	67	67	67	67	64	67	67	62	67	64	60	67	62	59	67	59	56	67	56	53	64	54	58	61	59	55	59	56	53	56	54	58	50	
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	69	72*	70	64	68	67	62	66	64	59	63	61	56	61	59	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	70	74*	74*	67	74*	71	64	72*	68	62	66	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	57
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	64*	60	65*	61	58	65*	59	55	65*	57	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	66*	66*	65*	65*	65*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	67*	61*	66*	64*	59	63*	61*	57			
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	54	55	54	59	53
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	58	55	53	55	55	58	53	54	56	50
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	65*	65*	61	65*	63*	59	65*	60	56	65*	57	53	65*	54	59	61	60	56	60	58	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	65*	65*	65*	64*	64*	63*	63*	63*	60*	61*	61*	58
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	63*	67*	64*	60*	64*	61*	57	61*	59	54	58	56	60	56	54	58
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	60	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	57	57	53	54	56	58	52	54	56	47
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	57	58	58	54	58	57	60	58	55	57	57	53	55
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	58	60	54	55	57	52	53	55	47	59	53	42
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	62	58	63	59	55	62	57	53	61	54	59			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	62	59	64	59	56	64	56	53	64	54	58	61	59	55	59	56	53	56	54	59
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	67*	67*	64	68*	67*	62	66*	64	59	62	61	56	61	59	54
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70*	72*	72*	67*	72*	71*	64	71*	68*	62	67*	64	59	63	61	56	60	58	54	57	55	59	55	53	56	53	58	54

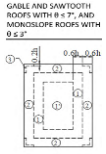
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

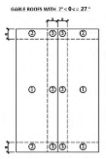
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

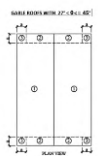
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

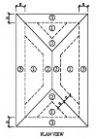












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

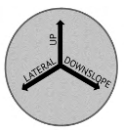
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

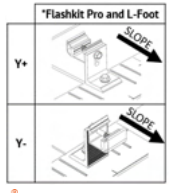
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	76	81	81	73	81	80	71	81	77	68	81	72	64	77	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	81	81	73	81	79	70	81	76	67	81	73	64	80	70	62	77	68	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	74	81	81	71	81	78	69	81	75	66	80	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	81	81	71	81	77	68	81	74	65	81	71	62	78	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	72	67	82	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	82	82	78	82	80	74	82	76	71	82	73	68	82	70	65	82	68	63	79	65	60	74	61	57	70	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	76	82	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	82	82	82	82	82	78	82	81	75	82	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	81	81	75	81	81	81	72	81	78	69	81	74	66	81	72	63	79	69	61	76	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	42
			Exposed	81	72	63	78	68	61	74	66	58	71	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	79	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	82	82	79	82	82	76	82	78	72	82	75	69	82	72	67	82	69	64	81	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	82	72	66	82	68	63	80	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	82	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	81	77	68	81	73	65	80	70	62	77	67	59	73	64	57	71	62	55	68	60	53	64	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	73	64	57	70	61	55	67	59	52	64	56	47	62	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	82	80	73	82	76	70	82	72	67	82	69	64	81	67	62	78	64	60	75	62	57	70	58	54	66	54	48	62	51	37	59	41	32	56	34	42	54	46	38
			Exposed	81	67	62	77	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	42	30
		27-45	Interior	82	82	78	82	81	74	82	77	71	80	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	52	63	56	43
			Exposed	76	76	73	76	76	70	76	76	67	76	73	64	76	70	62	76	68	60	74	65	58	69	61	54	65	58	50	62	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	52	63	56	44	60	53	36
			Exposed	76	76	71	76	76	68	76	74	65	76	71	62	76	68	60	75	65	58	72	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	72	67	79	68	63	78	64	59	74	61	56	70	58	54	67	55	50
			Exposed	79	79	78	79	79	74	79	76	71	79	73	68	79	70	65	79	68	63	79	65	60	74	61	57	70	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	77	71	78	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	69	78	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	74	66	76	72	63	76	69	61	76	67	59	71	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	76	72	63	76	68	61	74	66	58	71	63	56	69	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	64	57	69	60	54	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	76	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	79	72	66	79	68	63	79	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	42	46	38
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	81	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	64	57	70	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	76	67	59	72	64	56	69	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	76	76	73	76	76	68	76	74	65	76	71	62	76	68	60	75	65	58	72	63	56	67	59	52	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	76	69	61	76	66	59	72	63	56	69	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	79	72	66	79	68	63	79	66	61	76	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	42	46	38
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	71	66	72	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	81	77	71	79	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	60	67	64	57	67	61	54	66	58	52	63	56	43
			Exposed	67	67	67	67	67	67	67	67	67	67	67	64	67	67	62	67	67	60	67	65	58	67	63	56	67	61	54	65	58	50	62	55	41	59	52	34	56	45	40
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	58	67	62	55	67	59	52	63	56	44	60	53	36
			Exposed	67	67	67	67	67	67	67	67	65	67	67	62	67	67	60	67	65	58	67	63	56	67	59	52	63	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	72	67	73	68	63	73	64	59	73	61	56	70	58	54	67	55	50
			Exposed	73	73	73	73	73	73	73	73	71	73	73	68	73	70	65	73	68	63	73	65	60	73	61	57	70	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	71	76	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	76	76	76	76	76	76	76	75	76	76	76	72	76	75	69	76	72	67	75	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	66	67	67	63	67	67	61	67	67	59	67	63	55	67	59	52	63	56	44	60	53	36	57	49	48	55	41	42
			Exposed	67	67	63	67	67	61	67	66	58	67	63	56	67	61	54	66	59	52	64	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	28
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	61	67	67	59	67	64	57	67	60	54	64	57	47	61	53	37	57	49	48	55	39	42	52	33	38
			Exposed	67	67	61	67	66	59	67	63	56	67	61	54	66	58	52	64	56	46	62	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	73	72	66	73	68	63	73	66	61	73	63	58	73	60	56	71	58	54	68	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	74	76	76	76	71	76	76	68	76	76	68	76	76	64	76	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	76	76	71	76	73	68	75	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	61	67	67	59	67	64	57	67	62	55	66	58	52	62	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	67	67	59	67	64	56	67	61	54	67	59	52	64	57	47	62	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	67	67	67	67	67	65	67	67	62	67	67	59	67	64	57	67	62	55	67	63	56	67	59	52	64	57	47	60	53	35	56	45	46	54	36	40	49	47	35
			Exposed	67	64	57	67	61	55	67	59	52	64	56	47	62	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	74	62	57	70	58	54	66	54	48	62	51	37	59	41	32	56	34	42	54	46	38
			Exposed	74	67	62	74	64	59	74	61	57	71	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	42	30
		27-45	Interior	77	77	77	77	77	77	77	77	71	77	74	68	77	71	66	74	69	63	71	67	61	66	62	57	62	59	54	59	56	40	56	53	40	53	47	34	48	39	45
			Exposed	77	71	66	73	68	63	70	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30

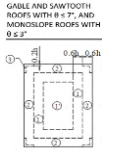
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

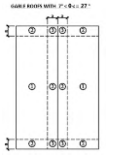
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

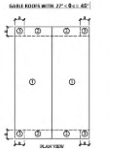
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

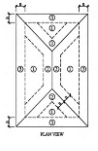












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

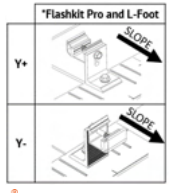
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	52	60	56	43
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	54	60	58	50	60	55	41	59	52	34	56	45	45	54	38	40
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	59	52	60	56	44	60	53	36		
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	52	60	55	43	59	52	34	56	44	45	54	36	40	50	48	36
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	64	59	67	67	56	67	58	54	67	55	50
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	63	67	65	60	67	61	57	67	57	53	66	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	63	70	65	60	66	62	57	62	58	54	59	55	50
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	64	70	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	59	52	60	56	44	60	53	36	57	49	42
			Exposed	60	60	60	60	60	60	60	60	58	60	60	56	60	60	54	60	59	52	60	57	47	60	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	57	47	60	53	37	57	49	48	55	39	42	52	33	38
			Exposed	60	60	60	60	60	59	60	60	56	60	60	54	60	58	52	60	56	46	60	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	62	67	62	58	67	59	54	67	55	51	64	52	40	61	45	34	58	37	45
			Exposed	67	67	66	67	67	63	67	66	61	67	63	58	67	60	56	67	58	54	67	56	52	64	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	71	66	71	67	62	67	63	58	63	60	55	60	57	52	57	54	44	55	52	36
			Exposed	72	72	71	72	72	68	72	70	65	72	68	62	69	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	64	69	67	62	69	64	60	69	62	57	69	58	54	66	54	48	62	51	37	59	41	32	56	34	42	54	46	38
			Exposed	69	67	62	69	64	59	69	61	57	69	58	54	68	56	52	66	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	68	73	71	66	73	69	63	71	67	61	66	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	73	71	66	73	68	63	70	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	52	58	56	43
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	50	58	55	41	58	52	34	56	45	45	54	38	40
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	56	44	45	54	36	40	50	48	36
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	61	56	62	58	54	62	55	50
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	61	57	62	57	53	62	54	46	62	51	37	59	41	32	57	34	43
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	63	70*	65	60	63	62	57	61	59	55
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67	69*	69*	64	69*	65	60	66	62	57	62	58	54	59	55	50	56	53	40	53	48	34
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	52	58	56	44	58	53	36	57	49	48	55	41	42
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	57	47	58	53	37	57	48	47	54	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	52	58	58	53	57	49	48	55	39	42	52	33	38
			Exposed	58	58	58	58	58	58	58	58	56	58	58	54	58	58	52	58	56	46	58	54	39	58	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	59	54	62	55	51	61	52	40	60	45	34	58	37	45
			Exposed	62	62	62	62	62	62	62	62	61	62	62	58	62	60	56	62	58	54	62	56	52	62	53	41	60	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	68*	69*	69*	66	68*	66	62	64	63	58	62	60	55	60	57	52	57	54	44	55	52	36
			Exposed	69*	69*	69*	69*	69*	68*	69*	69*	65	69*	68*	62	69*	65	60	67	63	58	65	61	56	60	57	52	57	54	43	54	49	35	49	40	46	39	34	40	33	45	36
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	58	52	60	55	42	59	52	34	56	45	45	53	38	40	50	33	35
			Exposed	60	60	59	60	60	56	60	60	54	60	59	52	60	57	47	60	55	41	60	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	60	53	60	56	45	60	53	35	56	45	46	54	36	40	49	47	35	40	42	31
			Exposed	60	60	57	60	60	55	60	59	52	60	56	47	60	54	39	59	52	34	57	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	58	64	54	48	62	51	37	59	41	32	56	34	42	54	46	38			
			Exposed	64	64	62	64	64	59	64	61	57	64	58	54	64	56	52	64	54	47	64	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	69	75*	69	68	75*	69	66	69	69	63	67	67	61	65	62	57	62	59	54	59	56	50	56	53	40	53	47	34	48	39	45
			Exposed	75*	69	66	69	68	63	69	65	60	67	63	58	64	61	56	62	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	43			
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	41	53	52	34	53	45	45	53	38	40
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44	54	54	45	54	36	40	50	48	36
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54	60*	55	50
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	57	60*	57	53	60*	54	46	60*	57	51	60*	58	41	57	34	43
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	61*	61*	60*	59*	59*	57*	58*	58*	55
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	62*	57*	62*	58*	54	59*	56*	50	56*	53	40	53	48	34
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	44	53	53	36	53	49	48	53	41	42
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	47	53	53	37	53	48	47	53	39	41	50	33	36	42	44	31	36	39	29
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	54	37	53	49	48	52	39	42	51	33	38
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	46	54	54	39	54	49	32	54	38	41	51	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	58	54	60*	55	51	57	52	40	56	45	34	55	37	45
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	58	60*	60*	56	60*	58	54	60*	56	52	60*	56	52	60*	53	41	60*	44	33	57	35	43	54	46	38	52	40	34	43	36	30
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	60*	60*	58*	58*	58*	55	58*	57*	52
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	60*	63*	63*	58*	63*	61*	56*	60*	57*	52	57*	54	43	54	49	35	49	40	46	39	34	40	33	45	36			
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	52	56	52	42	56	52	34	56	45	45	53	38	40	50	33	35
			Exposed	56	56	56	56	56	56	56	56	54	56	56	52	56	56	47	56	55	41	56	53	36	56	46	46	53	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	53	56	56	45	55	53	34	54	45	46	54	36	40	49	47	35	40	42	31
			Exposed	56	56	56	56	56	55	56	56	52	56	56	47	56	54	39	56	52	34	56	48	48	54	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	29	21
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	58	54	60	57	41	32	56	34	42	54	46	38					
			Exposed	60	60	60	60	60	59	60	60	57	60	58	54	60	56	52	60	54	47	60	52	40	60	42	32	56	33	42	53	44	36	48	38	32	39	34	28	34	30	25
		27-45	Interior	65*	65*	65*	65*	65*	63*	65*	65*	60	65*	63*	58	65*	61	56	62*	58	54	60	56	52	56	53	41	53	46	33	45	37	44	35	48	38	47	42	34	42	38	30
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	61	64*	62*	57	63*	59	54	57	56	50	55	53	40	53	47	34	48	39	45			

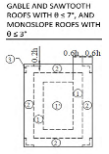
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

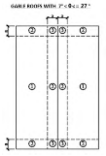
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

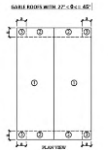
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

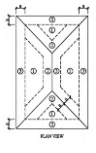












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

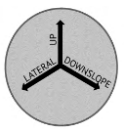
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

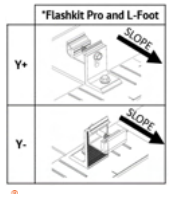
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	34	49	45	45	49	38	40
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	49	49	36
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	34	49	44	45	49	36	40	49	48	36
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	50
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	53*	55*	54*	46	55*	51*	37	55*	41	32	54*	34	43
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	56*	56*	55*	55*	55*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	55*	50*	56*	53*	40	53*	48*	34
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	36	49	49	48	49	41	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	37	49	48	47	49	39	41	49	33	36	42	44	51	36	39	28
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	49	49	49	48	49	39	42	48	49	38
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	39	49	49	32	49	38	41	49	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	51*	56*	52*	40	55*	45	34	54*	37	45
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	52*	55*	53*	41	55*	44	33	54*	35	43	54*	46	38	52*	40	34	43	36	30
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	55*	55*	55*	54*	54*	52*	52*	52*	44	51*	51*	36
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	52*	57*	54*	43	54*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	42	52	52	34	52	45	45	52	38	40
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	41	52	52	36	52	46	46	52	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	35	51	45	46	50	36	40	49	47	35	40	42	31
			Exposed	52	52	52	52	52	52	52	52	52	52	52	47	52	52	39	52	52	34	52	48	48	52	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	58*	54	48	57*	51	37	56*	41	32	53	34	42	51	46	38
			Exposed	59*	59*	59*	59*	59*	59*	57*	59*	58*	54	59*	56*	52	59*	54	47	59*	52	40	59*	42	32	56*	33	42	53	44	36	48	38	32	39	34	28	34	30	28	34	25
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	58*	58*	57*	56*	56*	54*	55*	55*	50	55*	53*	40	53*	47	34	48	39	45
			Exposed	61*	61*	61*	61*	61*	61*	60*	61*	61*	58*	61*	61*	56*	61*	58*	54*	60*	57*	52	56*	53*	41	53*	46	33	45	37	44	35	48	38	47	42	34	42	38	30
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	34	46	45	45	46	38	40
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	46	46	46	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	45	46	46	43	46	48	36
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46*	51*	51*	37	51*	41	32	51*	34	43
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	40	50*	48*	34
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	46	48	46	41	42
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	47	46	39	41	46	33	36
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	48	46	39	42
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	32	46	38	41	46	46	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	41	51*	44*	33	51*	35	43	51*	46	38	50*	40	34	49*	37	45
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43*	50*	49*	35	49*	40	46	39	34	40	33	45	36
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	42	48	48	34	48	45	45	48	38	40	48	48	33	35
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	41	48	48	36	48	46	46	48	37	39	47	48	34	39	42	30	33	37	26	45	33	29
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	35	48	45	46	47	36	40	47	47	35	40	42	31
			Exposed	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34	48	48	48	48	36	40	48	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	53*	53*	48*	52*	51*	37	53*	41	32	52*	34	42	51*	46	38
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	52*	54*	54*	42	52*	44	36	48*	38	32	53*	33	42	52*	34	30	34	30	25
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	52*	52*	50*	51*	51*	40	49*	47*	34	48*	39	45
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	53*	41	53*	46*	33	45	37	44	35	48	38	47	42	34	42	38	30
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	34	43	43	45	43	38	40
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	34	43	43	43	43	43	45	43	36	40	43	48	36
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	48	43	41	42
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	39	41	43	43	33	36	43	43	48	36
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32	43	43	32	43	43	41	43	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	44*	33	46*	35	43	46*	46	38	46*	40	34	43*	37	45
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	35	44*	40*	46	39*	34	40	33	45	36
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	34	45	45	45	45	38	40	45	45	33	35
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	36	45	45	46	45	37	39	45	48	34	39	42	30	33	37	26	45	33	29	45	33	29
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	46	45	36	40	44	47	35	40	42	31
			Exposed	45	45	45	45	45	45	45	45	45	45	45	39	45	45	34	45	45	45	48	45	36	40	45	47	35	37	40	30	32	35	26	43	31	23	38	28	21
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	48*	50*	50*	37	49*	41	32	48*	34	42	47*	46	38
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	47*	50*	50*	40	50*	42	32	50*	33	42	50*	44	36	48*	38	32	39	34	28	34	30	25
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	33	45*	37	44	35	48	38	47	42	34	42	38	30
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	33	45*	37	44	35	48	38	47	42	34	42	38	30

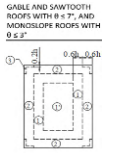
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

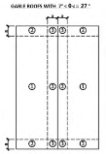
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

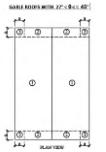
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

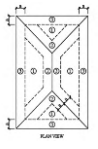












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

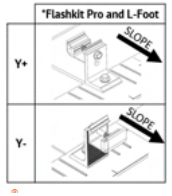
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	45	40	38	40		
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	34	43*	43*	45	43*	36	40	43*	48	36
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	32	41*	34	43			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	48	40	40	42		
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	47	40	39	41	40	33	36	40	44	51	36	39	29
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	48	43*	43*	37	43*	43*	48	43*	33	38
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39	43*	43*	32	43*	38	41	43*	32	36	40	42	32	34	37	28	45	33	25
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	41*	41*	41*	34	41*	37*	45
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	33	41*	35*	43	41*	46	38	41*	40	34
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	46	39*	34*	40	33*	45	36
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	34	43	43	45	43	38	40	43	33	35
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	36	43	43	46	39	42	30	33	37	39	43	48	34	39	42	30	45	29	29		
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	35	43	43	46	43	36	40	43	47	35	40	42	31
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	34	43	43	48	43	36	40	43	47	35	37	40	30	32	35	26	43	31	29	38	28	21		
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	41*	32	45*	34	42	45*	46	38
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	42*	32	45*	33	42	45*	44	36	45*	38	32	39*	34	28	34	30	38	25
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	34	43*	39*	45
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	33	43*	37*	44	35	48	38	47	42	34	42	38	30
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	34	38	38	45	38	38	40		
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34	41*	41*	45	41*	36	40	41*	48	36
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	32*	37*	37*	37*	37*	32*	37*	34*	43	
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	47	38	38	42		
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	47	38	38	41	38	33	36	38	44	51	36	39	29
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	48	41*	41*	41*	41*	41*	42	41*	33	38
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	32	41*	38*	41	41*	32	36	40*	42	32	41*	39*	42	41*	33	38
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	34*	37*	37*	45
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	35*	43	37*	46	38	37*	40	34	37	36	30
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*	36*	34*	40	33*	45*	36
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	45	40	38	40	40	33	35
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	46	40	37	39	40	48	34	39	42	30	33	37	28	45	29	29	
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	35	43*	43*	46	43*	36	40	43*	47	35	40	42	31
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39	43*	43*	34	43*	43*	48	43*	36	40	43*	47	35	37	40	30	32	35	26	43	31	29	38	28	21		
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34	41*	41*	32	41*	34	42	41*	46	38
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	32	41*	33	42	41*	44	36	41*	38	32	39*	34	28	34	30	38	25
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	45
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	33*	39*	37*	44	35*	48	38	47	42	34	42	38	30

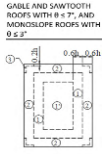
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

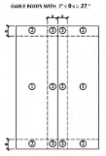
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

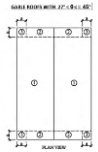
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

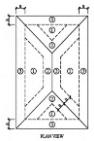












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

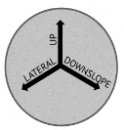
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

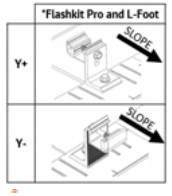
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	91	101	101	87	101	97	84	101	90	78	97	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	101	101	91	101	100	86	101	95	82	101	91	79	101	87	75	96	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	93	80	102	86	74	93	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	102	102	88	102	97	83	102	91	79	102	87	75	98	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	70	92	72	66	86	68	63	82	65	61
			Exposed	102	102	98	102	102	92	102	96	87	102	91	82	102	86	79	102	82	75	100	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	97	88	99	90	82	92	84	76	85	79	72	80	75	68	76	71	65
			Exposed	103	103	103	103	103	99	103	103	94	103	98	89	103	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	101	101	94	101	101	89	101	98	84	101	93	81	101	89	77	99	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	102	102	90	102	100	85	102	94	81	102	89	77	101	85	74	96	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	100	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	102	102	101	102	102	95	102	99	89	102	93	85	102	89	81	102	85	77	102	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	102	89	81	102	84	76	101	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	58	56	54
		27-45	Interior	103	103	103	103	103	102	103	103	96	103	101	92	103	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	103	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	101	99	86	101	94	82	101	90	78	99	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	102	96	82	102	90	78	102	86	74	96	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	73	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	102	101	91	102	95	86	102	90	81	102	85	77	102	81	74	98	77	71	94	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	102	81	74	97	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	103	103	98	103	103	93	103	97	88	102	93	84	96	88	80	92	85	77	88	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	91	95	95	87	95	95	84	95	90	78	95	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	95	95	91	95	95	86	95	95	82	95	91	79	95	87	75	95	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	93	80	95	86	74	93	79	69	87	74	65	81	70	62	76	66	59	72	63	57
			Exposed	95	95	88	95	95	83	95	91	79	95	87	75	95	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	70	92	72	66	86	68	63	82	65	61
			Exposed	99	99	98	99	99	92	99	96	87	99	91	82	99	86	79	99	82	75	99	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	97	88	99	90	82	92	84	76	85	79	72	80	75	68	76	71	65
			Exposed	102	102	102	102	102	99	102	102	94	102	98	89	102	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	95	95	94	95	95	89	95	95	84	95	93	81	95	89	77	95	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	95	95	90	95	95	85	95	94	81	95	89	77	95	85	74	95	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	95	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	99	99	99	99	99	89	99	93	85	99	89	81	99	85	77	99	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54			
			Exposed	99	89	81	99	84	76	99	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	102	102	102	102	102	102	102	102	96	102	101	92	102	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	102	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	95	95	82	95	90	78	95	86	74	95	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	67	86	73	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	102	102	102	102	102	102	102	102	96	102	101	92	102	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	102	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
			Exposed	95	95	95	95	95	95	95	95	94	95	95	89	95	94	85	95	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	85	74	65	81	70	62	77	67	59
			Exposed	86	86	86	86	86	86	86	86	82	86	86	79	86	86	75	86	83	72	86	80	69	86	75	65	80	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	86	86	74	86	79	69	86	74	65	81	70	62	76	66	59	72	63	57
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	81	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	70	92	72	66	86	68	63	82	65	61
			Exposed	92	92	92	92	92	92	92	92	87	92	91	82	92	86	79	92	82	75	92	79	72	92	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	90	82	92	84	76	85	79	72	80	75	68	76	71	65
			Exposed	95	95	95	95	95	94	95	95	89	95	94	85	95	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56			
	C	0-7	Interior	86	86	86	86	86	86	86	86	84	86	86	81	86	86	77	86	85	74	86	82	71	86	76	66	82	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	85	74	86	82	71	86	78	68	84	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	86	85	73	86	80	70	86	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	69	64	82	65	61	77	62	58	73	60	56	69	57	54
			Exposed	92	89	81	92	84	76	92	79	72	92	75	69	91	72	66	87	69	64	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	87	95	92	83	95	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	95	95	87	95	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	86	82	71	86	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	86	86	82	86	86	78	86	86	74	86	81	71	86	78	68	86	74	65	83	71	63	77	66	60	74	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	86	78	67	86	73	64	81	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	93	93	91	93	93	86	93	90	81	93	85	77	93	81	74	93	77	71	93	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	93	81	74	93	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	88	80	92	85	77	88	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

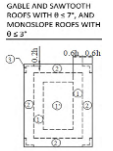
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

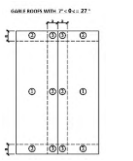
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

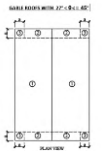
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

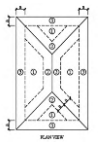












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

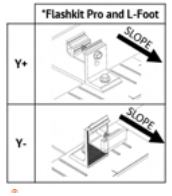
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	79	74	65	79	70	62	77	67	59						
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	69	79	75	65	79	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	80	74	65	80	70	62	76	66	59	72	63	57			
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	77	70	86	72	66	86	68	63	82	65	61					
			Exposed	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	82	75	86	79	72	86	73	66	86	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	84	76	85	79	72	80	75	68	76	71	65		
			Exposed	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56		
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	71	79	79	68	79	76	66	79	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	64	79	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	70	80	78	68	80	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	80	80	73	80	80	70	80	76	66	80	73	64	80	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	85	74	86	85	77	86	81	74	86	75	68	86	69	64	82	65	61	77	62	58	73	60	56
			Exposed	86	86	81	86	84	76	86	79	72	86	75	69	86	72	66	86	86	69	84	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	69	57	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	87	90	90	83	90	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57			
			Exposed	90	90	87	90	90	82	90	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	73	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	88	88	88	88	88	86	88	88	81	88	85	77	88	81	74	88	77	71	88	74	68	87	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	88	81	74	88	76	70	88	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	88	80	91	85	77	88	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	91	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	74	65	78	70	62	77	67	59	
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	75	65	78	70	62	75	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	65	78	70	62	76	66	59	72	63	57
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	62	76	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	70	82	72	66	82	68	63	81	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	66	82	68	63	80	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	84	76	83	79	72	80	75	68	76	71	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	76	66	78	72	63	77	67	60	73	64	57	69	61	55	66	59	60
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	64	78	71	62	78	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	70	78	78	68	78	72	63	78	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	78	78	73	78	78	70	78	76	66	78	73	64	78	69	62	77	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	75	82	82	77	82	81	74	82	75	68	82	74	69	82	65	61	77	62	58	73	60	56
			Exposed	82	82	81	82	82	76	82	79	72	82	75	69	82	72	66	82	69	64	82	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	69	57	54
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	84	82	74	82	76	69	76	72	65	71	68	62	67	64	59	64	62	57			
			Exposed	86	86	86	86	86	82	86	86	78	86	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	71	63	78	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	74	65	80	71	63	77	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	67	80	73	64	80	70	62	77	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	83	83	83	83	83	83	83	83	81	83	83	77	83	81	74	83	77	71	83	74	68	83	68	63	81	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	83	81	74	83	76	70	83	73	66	83	69	64	83	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	87	87	80	87	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	65	74	70	62	74	67	59	
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	65	74	70	62	74	66	59	71	63	56	67	60	54	64	58	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	65	74	70	62	74	66	59	72	63	57
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	62	74	65	59	71	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	77	70	78	72	66	78	68	63	77	65	61
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	73	78	78	73	66	78	68	63	78	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	76	80	79	72	79	75	68	76	71	65
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	82	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	63	74	67	60	73	64	57	69	61	55	66	59	60
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	64	74	71	62	74	69	61	73	64	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	68	74	74	68	74	67	60	72	63	57	68	61	55	64	58	60	62	56	58
			Exposed	74	74	73	74	74	70	74	74	66	74	73	64	74	69	62	74	66	60	74	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	68	78	69	64	77	65	61	76	62	58	73	60	56	69	57	54
			Exposed	78	78	78	78	78	76	78	78	72	78	75	69	78	72	66	78	69	64	78	66	62	78	62	59	72	59	56	68	56	53	64	54	58	62	59	56	69	57	54
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	81	81	74	79	76	69	76	72	65	71	68	62	67	64	59	64	62	57
			Exposed	82	82	82	82	82	82	82	82	78	82	82	75	82	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	71	76	76	68	76	76	66	76	71	62	76	66	59	71	63	56	67	60	54	64	58	59	62	56	57			
			Exposed	76	76	71	76	76	68	76	75	65	76	71	63	76	69	61	75	66	59	73	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	74	65	76	71	63	76	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	76	76	67	76	73	64	76	70	62	76	67	60	74	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	77	71	80	74	68	80	68	63	79	64	60	76	61	57	71	59	55	67	56	60	64	54	58
			Exposed	80	80	74	80	76	70	80	73	66	80	69	64	80	66	62	80	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	83	83	77	82	81	73	80	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	84	84	80	84	84	76	84	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

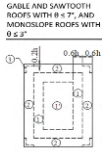
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

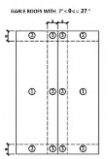
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

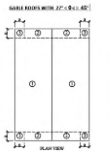
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

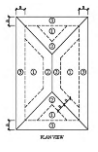












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

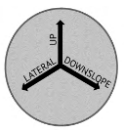
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

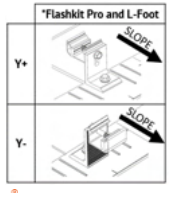
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	67	59			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	56	67	60	54	64	58	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	69	62	69	66	59	69	63	57			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	62	69	65	59	69	62	56	66	59	54	63	57	59	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	72	66	75	68	63	74	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	66	75	68	63	75	64	60	75	61	57	71	59	55	68	56	53
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	76	77	77	72	76	75	68	75	71	65			
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	69	67	60	69	64	57	69	61	55	66	59	60
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	64	69	69	62	69	69	61	69	69	57	68	61	54	65	58	60	62	56	57	59	61	55	57	59	61	55	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	63	69	67	60	69	63	57	68	61	55	64	58	60	62	56	58
			Exposed	69	69	69	69	69	69	69	69	66	69	69	64	69	69	62	69	66	60	69	64	58	68	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	68	75	69	64	74	65	61	73	62	58	72	60	56	69	57	54
			Exposed	75	75	75	75	75	75	75	75	72	75	75	69	75	72	66	75	69	64	75	66	62	75	62	59	72	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	65	71	68	62	67	64	59	64	62	57
			Exposed	79	79	79	79	79	79	79	79	78	79	79	75	79	79	72	79	76	69	78	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	62	72	66	59	71	63	56	67	60	54	64	58	59	62	56	57
			Exposed	72	72	71	72	72	68	72	72	65	72	71	63	72	69	61	72	66	59	72	64	57	68	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	65	72	71	63	72	66	60	71	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	72	72	67	72	72	64	72	70	62	72	67	60	72	64	58	71	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	68	63	76	64	60	75	61	57	71	59	55	67	56	60	64	54	58
			Exposed	77	77	74	77	76	70	77	73	66	77	69	64	77	66	62	77	64	60	77	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	73	78	75	68	75	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	56	64	60	54	64	58	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	63	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	59	64	62	56	64	64	59	54	63	57	59	61	55	57
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	70	71	71	66	71	68	63	71	65	61
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	63	71	64	60	71	61	57	71	59	55	68	56	53
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	85*	85*	75	74	74	72	73	73	68	72	71	65
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	81*	76	72	76	74	67	74	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	57	64	61	55	64	59	60
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	61	64	64	57	64	61	54	64	58	60	62	56	57	59	61	55	57	59	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	63	57	64	61	55	64	58	60	62	56	58
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	64	58	64	64	61	55	64	58	60	61	55	57	58	60	55	56	58	52	54	56	49
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	69	64	71	65	61	70	62	58	69	60	56	67	57	54
			Exposed	71	71	71	71	71	71	71	71	71	71	71	69	71	71	66	71	69	64	71	66	62	71	62	59	71	59	56	68	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76	75	75	74	74	74	69	72	72	65	71	68	62	67	64	59
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	76	81*	81*	75	81*	76	72	81*	76	69	76	73	66	72	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	59	67	63	56	67	60	54	64	58	59	62	56	57
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	61	67	66	59	67	64	57	67	60	54	64	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	66	60	68	63	57	66	60	54	63	57	59	61	55	57	58	60	55
			Exposed	68	68	67	68	68	64	68	68	62	68	67	60	68	64	58	68	62	56	68	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	68	63	73	64	60	72	61	57	71	59	55	67	56	60	64	54	58
			Exposed	74	74	74	74	74	70	74	73	66	74	69	64	74	66	62	74	64	60	74	62	58	72	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	77	77	77	73	75	75	68	74	70	64	70	66	61	65	63	58	63	60	56	60	58	54
			Exposed	78	78	78	78	78	78	72	78	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	58	55	60	56	55	58	55	60	56	58	54
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	54	60	58	59
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	63	67	65	61
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	67	59	67	66	53
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	72*	73*	73*	68
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	67	73*	70	64	69	66	61	65	63	58	63	61	56
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	59	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	56	57	59	61	55	57	59	59		
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	58	60	60	56	58	60	60	55
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	65	60	56	64	57	54
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	62	67	67	59	67	59	56	67	56	53	64	54	58	62	59	56	59	57	54
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	74*	74*	69	72*	72*	65	68	68	62	66	64	59	64	62	57
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	69	74*	73*	66	72*	68	62	67	64	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	56	63	60	54	63	58	59	62	56	57
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	59	63	63	57	63	60	54	63	57	59	61	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	57	63	63	56	63	60	54	63	57	59	61	55	55
			Exposed	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	62	56	63	60	55	63	57	59	60	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	63	70	64	60	69	61	57	67	59	55	66	56	60	64	54	58		
			Exposed	70	70	70	70	70	70	70	70	66	70	69	64	70	66	62	70	64	60	70	62	58	70	59	55	67	56	60	63	53	57	61	58	55	58	56	59	56	54	49
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	80*	80*	80*	80*	75	79*	79*	73	73	73	68	72	70	64	69	66	61	65	63	58	63	60	56	60	58	54
			Exposed	81*	81*	80*	81*	81*	76	81*	80*	72	81*	76	69	76	73	66	74	70	64	71	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

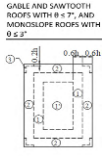
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

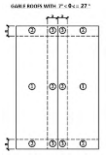
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

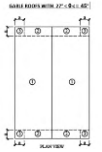
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

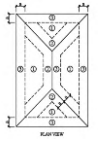












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

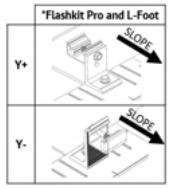
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59		
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59			
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	59	55	63	56	53
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	69*	69*	68*	68*	68*	67*	67*	65*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	67*	71*	70*	64*	69*	66*	61	66*	63	58	63	61	56
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	60
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57	57	61	55	57	59	59
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	57	55	57	57	60	57	56	58	
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	55	57	57	60	55	56	58	52	54	56	49	
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	62	58	63	60	56	62	57	54
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	62	59	63	59	56	63	56	53	63	54	58	62	59	56	59	56	54	57	54	
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	68*	68*	68*	67*	67*	65*	65*	65*	62	66*	64*	59	64*	62	57
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	70*	68*	62	67*	64*	59	63	61	56	60	58	54	58	56	59	56	54	57
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	60	54	60	58	59	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	57	59	60	55	56	58	60	54	56	58	51	61	55	46
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	59	59	55	57	58	60	55
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	60	55	60	57	59	55	57	59	54	55	57	52	60	55	46	58	52	41			
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	64	60	66	61	57	65	59	55	64	56	60	62	54	58
			Exposed	67	67	67	67	67	67	67	67	66	67	67	64	67	66	62	67	64	60	67	62	58	67	59	55	67	56	60	63	53	57	61	58	55	58	56	60	63	53	49
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	72*	72*	72*	73*	73*	68	72*	71*	64	67	66	61	65	63	58	63	60	56	60	58	54
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	69	74*	73*	66	73*	70	64	71*	67	62	66	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59	54	57
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	61*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	60	64*	61*	57	64*	59	55	64*	56	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	64*	64*	64*	64*	64*	64*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	64*	67*	66*	61*	65*	63*	58*	63*	61*	56
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	61	55	54	59	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	58
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	60	55	54	58	52	54	56	49
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	62*	58	63*	60	56	62*	57	54
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	62*	59	64*	59	56	64*	56	53	64*	54	58	62*	59	56	59	57	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	65*	65*	65*	63*	63*	62*	62*	62*	60*	61*	61*	57
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	62*	66*	64*	59*	63*	61*	56	60*	58*	54	58*	56	59	56	54	57
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	54	57	57	59	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	56	57	60	54	56	58	51	61	55	46
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	57	56	60	55
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	55	57	57	59	57	54	56	57	59	54	55	57	52	60	55	46	58	52	41
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	62	59	55	61	56	60	60	54	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	62	58	63	59	55	63	56	60	63	53	57	61	58	55	58	56	59	56	54	49		
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	68*	68*	68*	66*	66*	64*	65*	65*	61	65*	63	58	62	60	56	60	58	54
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66*	71*	70*	64*	70*	67*	62	66*	63	59	62	60	56	59	57	53	57	55	58	55	60	56	60	58	54

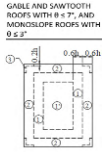
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

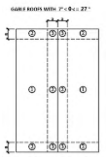
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

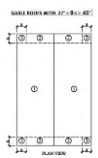
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

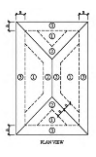












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

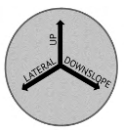
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

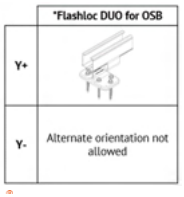
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	32	34	34	28	34	34	25	34	33	23	34	29	20	34	27	18	34	24	17	28	20	14	24	17	12	21	15	10	18	13	9	16	11	8	14	10	7
			Exposed	34	29	20	34	26	18	32	23	16	29	21	14	26	19	13	24	17	12	22	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	34	34	28	34	34	25	34	30	22	34	27	20	34	24	18	31	22	16	28	20	15	24	17	12	20	14	11	17	12	9	15	11	8	13	9	7	12	8	6
			Exposed	34	24	18	30	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	35	35	34	35	35	30	35	33	27	35	29	24	35	27	22	35	24	20	35	22	18	32	18	15	27	16	13	24	13	11	20	12	10	18	10	8	16	9	7
			Exposed	35	26	22	35	23	19	35	21	17	33	19	15	30	17	14	27	15	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	35	35	35	35	35	32	35	35	29	35	33	26	34	30	24	31	27	22	26	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9			
			Exposed	35	33	26	33	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	34	31	22	34	28	19	34	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	28	20	14	25	18	12	22	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	34	26	19	32	23	17	29	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	23	17	12	20	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	35	28	23	35	25	20	35	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	31	18	15	28	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	35	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	9	6	7	6	5	6
	D	0-7	Interior	34	26	18	32	23	16	28	20	14	25	18	13	23	16	11	21	15	10	19	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	23	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	30	21	16	26	19	14	24	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	4	6	5	5	5	4	6	5
		20-27	Interior	35	23	19	35	21	17	32	18	15	29	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	33	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
10	B	0-7	Interior	28	28	28	28	28	28	28	28	25	28	28	23	28	28	20	28	27	18	28	24	17	28	20	14	24	17	12	21	15	10	18	13	9	16	11	8	14	10	7
			Exposed	28	28	20	28	26	18	28	23	16	28	21	14	26	19	13	24	17	12	22	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	8	6	7
		7-20	Interior	28	28	28	28	28	25	28	28	22	28	27	20	28	24	18	28	22	16	28	20	15	24	17	12	20	14	11	17	12	9	15	11	8	13	9	7	12	8	6
			Exposed	28	24	18	28	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	32	32	32	32	32	30	32	32	27	32	29	24	32	27	22	32	24	20	32	22	18	32	18	15	27	16	13	24	13	11	20	12	10	18	10	8	16	9	7
			Exposed	32	26	22	32	23	19	32	21	17	32	19	15	30	17	14	27	15	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	34	34	34	34	34	34	34	34	32	34	34	29	34	33	26	34	30	24	31	27	22	26	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9
			Exposed	34	33	26	33	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	28	28	22	28	28	19	28	25	17	28	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	28	20	14	25	18	12	22	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	28	26	19	28	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	23	17	12	20	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	32	28	23	32	25	20	32	22	18	32	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	31	18	15	28	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	34	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	28	26	18	28	23	16	28	20	14	28	18	13	23	16	11	21	15	10	19	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	23	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	28	26	19	28	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	23	17	12	20	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	32	28	23	32	25	20	32	22	18	32	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	31	18	15	28	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	34	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
20	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	20	14	20	17	12	20	15	10	18	13	9	16	11	8	14	10	7
			Exposed	20	20	20	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	20	15	21	17	12	20	14	11	17	12	9	15	11	8	13	9	7	12	8	6
			Exposed	21	21	18	21	21	16	21	19	14	21	17	13	21	16	11	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	25	25	25	25	25	25	25	25	25	24	25	22	25	24	20	25	22	18	25	18	15	25	16	13	24	13	11	20	12	10	18	10	8	16	9	7			
			Exposed	25	25	22	25	23	19	25	21	17	25	19	15	25	17	14	25	15	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	27	22	26	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9			
			Exposed	28	28	26	28	28	23	28	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	20	20	20	20	20	19	20	20	17	20	20	15	20	20	14	20	18	13	20	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	20	20	14	20	18	12	20	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	21	21	19	21	21	17	21	20	15	21	18	13	21	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	21	17	12	20	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	25	25	23	25	25	20	25	22	18	25	20	16	25	18	15	25	16	13	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	25	18	15	25	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	28	28	27	28	28	24	28	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	20	20	18	20	20	16	20	20	14	20	18	13	20	16	11	20	15	10	19	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	20	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	21	21	16	21	19	14	21	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	5	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	4	6	5	5	5	4	6	5
		20-27	Interior	26	23	19	26	21	17	26	18	15	26	17	14	26	15	12	24	14	11	22	12	10	18	10	9	7	13	8	6	12	7	5	10	6	5	9	5	6		
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5

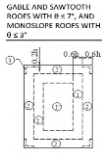
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

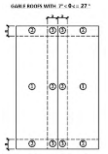
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

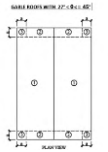
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

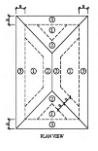












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

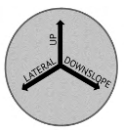
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

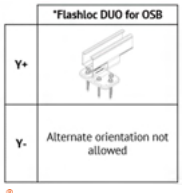
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	10	16	14	9	16	11	8	14	10	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	16	11	16	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	16	14	11	16	12	9	15	11	8	13	9	7	12	8	6	10	7	6
			Exposed	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	18	15	21	16	13	21	13	11	20	12	10	18	10	8	16	9	7
			Exposed	21	21	21	21	21	19	21	21	17	21	19	15	21	17	14	21	15	13	21	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9	12	8	6
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	15	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	11	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	16	16	14	16	16	12	16	16	11	16	14	10	16	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	16	16	12	16	15	11	16	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	16	13	21	15	12	21	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	21	18	15	21	16	13	21	14	12	21	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	23	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	15	10	16	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	16	16	11	16	15	10	16	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	12	16	15	11	16	14	10	16	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	16	14	10	16	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	22	22	19	22	21	17	22	18	15	22	17	14	22	15	12	22	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	22	15	12	22	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	20	25	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
40	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	8	14	10	7
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	15	15	13	15	15	12	15	15	11	15	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	11	15	12	9	15	11	8	13	9	7	12	8	6
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	17	12	10	17	10	8	16	9	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	14	12	17	12	10	17	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	15	18	17	13	17	15	12	15	13	10	13	11	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	15	15	14	15	15	12	15	15	11	15	14	10	15	13	9	15	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	14	10	15	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	15	15	12	15	15	11	15	13	10	15	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	10	17	11	9	16	9	8	14	8	7	12	7	6	11	6	5		
			Exposed	17	17	15	17	16	13	17	14	12	17	13	11	17	12	10	17	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	20	20	18	20	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	16	11	16	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	16	16	11	16	15	10	16	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	12	16	15	11	16	14	10	16	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	16	14	10	16	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	22	22	19	22	21	17	22	18	15	22	17	14	22	15	12	22	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	22	15	12	22	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	20	25	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
50	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	8	13	10	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	13	11	8	13	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	10	13	13	10	13	13	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	8	14	9	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	12	10	15	12	8	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	15	16	16	13	15	15	12	15	13	10	13	11	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	8	13	10	7	12	9	6	11	8	5	9	7	5
			Exposed	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	13	11	13	12	9	11	8	6	11	8	6	9	6	7	8	6	6	7	5	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	8	13	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	10	15	11	9	14	9	8	14	8	7	12	7	6	11	6	5
			Exposed	15	15	15	15	15	13	15	14	12	15	13	11	15	12	10	15	11	9	15	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16	17	17	15	16	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	18	18	18	18	18	16	18	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	14	9	14	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	14	14	11	14	14	10	14	13	9	14	12	8	14	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	14	14	10	14	12	9	14	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	14	11	16	12	10	16	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	16	15	12	16	13	11	16	12	10	16	11	9	16	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	19	19	19	19	19	19	19	19	18	18	18	16	18	18	14	18	17	13	17	16	12	15	13	10	13	12	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	19	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5

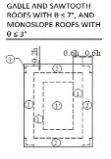
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

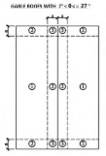
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

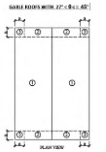
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

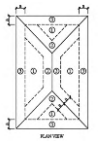












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

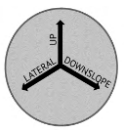
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

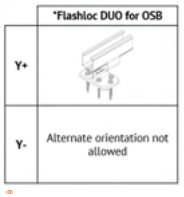
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	8	11	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	13	9	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	8	13	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	12	13	10	8	13	9	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	7	11	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	6			
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	11	9	13	9	8	12	8	7	12	7	6	11	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	15	14	14	12	14	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	14	16	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	12	12	11	12	12	10	12	12	9	12	12	8	12	11	7	12	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	6	4	5	5	3	6	5	3
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	12	10	14	10	9	13	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	14	14	12	14	13	11	14	12	10	14	11	9	14	10	8	14	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	5	5	6	6	4	5	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	16	16	16	15	16	16	13	15	15	12	14	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	17	17	15	17	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	7	5	5	6	7	6	5		
70	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	10	8	11	9	7
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	8	12	9	7	12	8	6	12	9	7	10	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	7	9	9	6	9	9	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	8	12	9	7	11	9	8	11	8	7	11	7	6
			Exposed	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	10	6	5	9	5	7	8	7	6	10	6	5	9	5	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	12	12	12	11	12	12	9	11	10	8	9	9	7	9	8	6
			Exposed	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6			
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	8	6	10	8	6			
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	10	7	10	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	8	6	10	7	5	8	6	7	7	5	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	10	13	10	9	12	9	7	12	8	6	11	7	5	10	6	5	9	5	6
			Exposed	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	5	10	6	7	9	5	6	7	5	5	6	6	4	5	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	12	13	13	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
80	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	7	10	8	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	10	11	11	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	7	5	5	6	7	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	9	8	10	8	7	10	9	7	10	8	6	9	6	5	9	6	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	6	5	9	5	7	8	7	6	7	6	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	11	11	11	11	11	9	10	10	8	10	9	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	6	9	9	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	9	11	9	7	11	8	6	10	7	5	10	6	5	9	5	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	13	12	12	12	10	11	11	8	10	9	7	9	8	7	8	7	6	7	6	5
			Exposed	14	14	14	14	14	13	14	14	12	14	13	11	13	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5

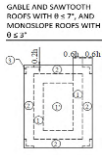
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

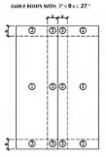
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

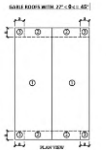
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

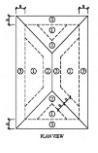












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

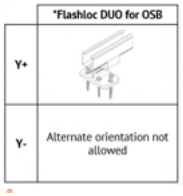
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7			
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6			
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	9	7			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	10	10	10	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6	7	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	5	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	9	8	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	7	8	7	5	8	6	7	7	5	6	6	7	5	6	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	8	7	5	8	6	7	6	7	5	6	4	5	5	4	6	5	3			
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	9	7	5	9	6	5	9	5	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	7	5	10	6	7	9	5	6	7	5	6	6	5	4			
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	11	10	11	11	9	10	10	8	9	8	7	8	7	6	7	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	12	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
100	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	6
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	8	7	8	7	6
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	6	5	6	6	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	5	7	8	7	6	7	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	8	9	9	7	8	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	6	7	7	5	7	6	5	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	5	8	5	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	5	9	6	7	9	5	6	7	5	6	6	5	4			
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	10	10	10	9	9	9	8	9	8	7	8	7	6	7	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	11	11	10	11	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5

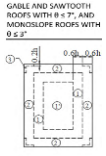
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

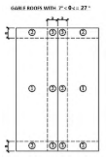
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

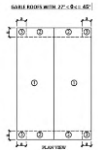
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

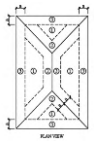












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

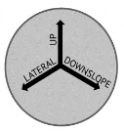
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	57	57	54	57	57	48	57	57	43	57	55	38	57	50	34	57	45	31	57	41	29	48	34	24	41	29	20	35	25	18	30	22	15	27	19	14	24	17	12
			Exposed	57	49	34	57	44	31	55	39	27	49	35	25	44	32	22	40	29	20	37	26	18	31	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	57	57	47	57	57	42	57	51	37	57	46	33	57	41	30	52	38	27	48	34	25	40	29	21	34	25	18	29	21	16	25	18	14	22	16	12	20	14	11
			Exposed	57	41	30	51	37	27	45	33	24	41	29	22	37	27	20	33	24	18	31	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	58	58	57	58	58	51	58	55	45	58	50	41	58	45	37	58	41	33	58	37	30	54	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	58	45	37	58	40	33	58	35	29	56	32	26	50	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	59	59	59	59	59	59	59	59	59	59	59	49	59	56	44	57	51	40	52	46	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	59	56	44	56	50	39	50	44	35	45	40	31	40	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	57	52	36	57	46	32	57	41	29	52	37	26	47	34	24	43	31	21	39	28	20	33	23	16	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	47	34	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	57	44	32	54	39	28	48	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	39	28	21	35	25	18	31	22	16	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	58	47	39	58	42	34	58	38	31	58	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	59	59	46	59	53	41	53	47	37	47	42	33	43	38	30	39	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	57	43	30	54	38	27	48	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	39	28	19	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	50	36	26	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	58	39	32	58	35	29	54	31	26	49	28	23	44	25	21	40	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	38	49	43	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
10	B	0-7	Interior	46	46	46	46	46	46	46	46	43	46	46	38	46	46	34	46	45	31	46	41	29	46	34	24	41	29	20	35	25	18	30	22	15	27	19	14	24	17	12
			Exposed	46	46	34	46	44	31	46	39	27	46	35	25	44	32	22	40	29	20	37	26	18	31	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	47	47	47	47	47	42	47	47	37	47	46	33	47	41	30	47	38	27	47	34	25	40	29	21	34	25	18	29	21	16	25	18	14	22	16	12	20	14	11
			Exposed	47	41	30	47	37	27	45	33	24	41	29	22	37	27	20	33	24	18	31	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	53	53	53	53	53	51	53	53	45	53	50	41	53	45	37	53	41	33	53	37	30	53	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	53	45	37	53	40	33	53	35	29	53	32	26	50	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	57	57	57	54	57	57	49	57	56	44	57	51	40	52	46	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	57	56	44	56	50	39	50	44	35	45	40	31	40	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	46	46	36	46	46	32	46	41	29	46	37	26	46	34	24	43	31	21	39	28	20	33	23	16	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	46	34	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	47	44	32	47	39	28	47	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	39	28	21	35	25	18	31	22	16	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	53	47	39	53	42	34	53	38	31	53	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	57	57	46	57	53	41	53	47	37	47	42	33	43	38	30	39	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	46	43	30	46	38	27	46	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	39	28	19	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	47	36	26	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	55	39	32	55	35	29	54	31	26	49	28	23	44	25	21	40	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	38	49	43	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
20	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	29	34	34	24	34	29	20	34	25	18	30	22	15	27	19	14	24	17	12
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	32	22	34	29	20	34	26	18	31	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	34	25	35	29	21	34	25	18	29	21	16	25	18	14	22	16	12	20	14	11
			Exposed	35	35	30	35	35	27	35	33	24	35	29	22	35	27	20	33	24	18	31	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	41	42	42	37	42	41	33	42	37	30	42	31	26	42	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	42	42	37	42	40	33	42	35	29	42	32	26	42	29	24	42	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	46	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	47	47	44	47	47	39	47	44	35	45	40	31	40	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	34	34	34	34	34	32	34	34	29	34	34	26	34	34	24	34	31	21	34	28	20	33	23	16	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	34	34	23	34	30	21	34	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	35	35	32	35	35	28	35	35	25	35	31	23	35	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	35	28	21	35	25	18	31	22	16	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	42	42	39	42	42	34	42	38	31	42	34	28	42	31	25	42	28	23	42	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	42	30	25	42	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	47	47	46	47	47	41	47	47	37	47	42	33	43	38	30	39	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	34	34	30	34	34	27	34	34	24	34	31	22	34	28	20	34	25	18	32	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	34	28	19	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	35	35	26	35	32	24	35	29	21	35	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	44	39	32	44	35	29	44	31	26	44	28	23	44	25	21	40	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	48	48	38	48	43	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

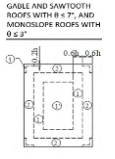
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

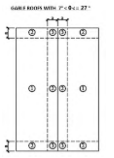
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

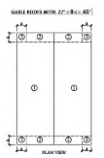
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

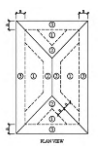












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

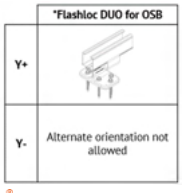
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	20	27	25	18	27	24	22	15	27	19	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18	27	21	16	25	18	14	22	16	12	20	14	11
			Exposed	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	18	27	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	31	26	35	27	22	35	23	19	35	20	16	30	18	14	27	16	13
			Exposed	35	35	35	35	35	33	35	35	29	35	32	26	35	29	24	35	26	22	35	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	39	39	39	39	39	39	39	39	35	39	39	31	39	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	23	16	27	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	27	27	23	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	26	19	27	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	27	27	21	27	25	18	27	22	16	27	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	35	35	35	35	35	34	35	35	31	35	34	28	35	31	25	35	28	23	35	25	21	35	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	35	30	25	35	27	22	35	24	20	35	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	37	39	39	33	39	38	30	38	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	39	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	27	27	19	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	26	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	36	36	32	36	35	29	36	31	26	36	28	23	36	25	21	36	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	36	25	21	36	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	17	9	11	10	8	10	9	7	
		27-45	Interior	41	41	38	41	41	34	41	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	18	25	22	15	25	19	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	18	25	22	16	25	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	25	18	26	21	16	25	18	14	22	16	12	20	14	11
			Exposed	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	24	18	26	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	23	19	29	20	16	28	18	14	27	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	29	26	22	29	24	20	29	20	17	29	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	33	33	26	31	29	23	28	25	20	25	22	17	22	20	15
			Exposed	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	20	25	23	16	25	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	25	25	23	25	25	21	25	25	19	25	24	17	25	22	15	25	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	19	26	23	17	26	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	26	26	21	26	25	18	26	22	16	26	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	21	18	29	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	33	33	27	32	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	34	34	30	34	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	27	27	19	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	26	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	29	31	31	26	31	28	23	31	25	21	31	23	19	31	21	17	30	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	31	25	21	31	22	18	31	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	36	36	36	36	36	34	36	36	31	35	35	28	34	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
50	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	15	22	19	14	22	17	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	19	13	22	16	12	19	14	10	17	12	9	15	11	12
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	21	16	22	18	14	21	16	12	20	14	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	18	22	22	16	22	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	23	19	26	20	16	25	18	14	24	16	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	22	26	24	20	26	20	17	26	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	26	27	27	23	26	25	20	25	22	17	22	20	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	26	30	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	20	22	22	16	22	20	14	22	17	12	21	15	11	18	13	9	16	12	8
			Exposed	22	22	22	22	22	21	22	22	19	22	22	17	22	22	15	22	20	14	22	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	20	15	22	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	22	22	22	22	22	18	22	22	16	22	20	15	22	18	13	22	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	25	21	26	21	18	25	18	15	24	16	13	23	14	11	21	12	10	18	11	9
			Exposed	26	26	25	26	26	22	26	24	20	26	22	18	26	20	16	26	18	15	26	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	28	28	25	27	27	21	25	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	30	30	30	30	30	27	30	30	24	30	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	23	16	23	23	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10		
			Exposed	23	23	19	23	23	17	23	22	16	23	20	14	23	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	24	24	24	24	24	24	24	24	21	24	24	19	24	23	17	24	21	16	24	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	24	23	17	24	21	15	24	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	25	21	27	23	19	27	21	17	27	18	15	25	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	27	25	21	27	22	18	27	20	17	27	18	15	27	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	32	32	32	32	32	32	32	32	31	31	31	28	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	32	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

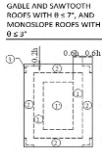
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

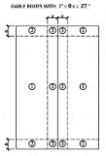
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

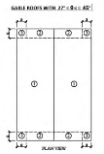
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

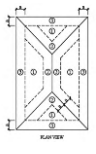












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	15	10	8
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	17	17	17	15
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	19	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	8	12	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	10	12	9	9	10	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	11	12	12	9	12	11	8	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	11	15	12	10	15	11	9	15	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	11	15	12	10	15	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	18	18	18	17	17	16	16	16	14	16	15	12	15	13	11
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	10	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	9	14	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	9	10	11	8	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	12	17	13	11	16	11	9	15	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	15	17	16	14	17	15	12	17	14	11	17	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	11	8	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	20	20	20	19	19	18	18	18	15	17	16	13	16	14	11	14	13	10	13	11	9
			Exposed	22	22	22	22	22	22	22	22	20	21	21	18	21	21	16	20	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	10
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	16	16	16	15
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	17	16	13	16	14	11	14	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	10	10	11	9	9	10	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	12	10	14	10	8	14	9	11	13	12	10	12	11	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	16	16	16	15	15	14	15	15	12	14	13	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	17	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	10	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10	11	8	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	10	12	12	9	12	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	11	15	11	9	14	9	11	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	12	15	14	11	15	12	9	15	10	8	15	8	11	13	11	9	11	10	8	11	9	7
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19	19	18	18	18	17	17	15	16	16	13	15	14	11	14	13	10	13	11	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	19	19	16	19	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

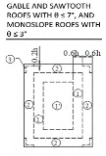
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

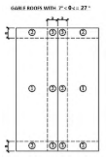
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

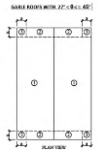
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

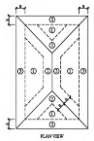












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

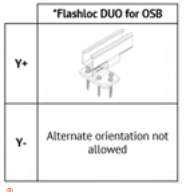
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	29	29	27	29	29	24	29	29	21	29	27	19	29	25	17	29	22	15	28	20	14	24	17	12	20	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	29	24	17	29	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	29	29	23	29	28	21	29	25	18	29	23	16	29	20	15	26	19	13	24	17	12	20	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	28	20	15	25	18	13	22	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	29	29	28	29	29	25	29	27	22	29	25	20	29	22	18	29	20	16	29	18	15	27	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	29	22	18	29	20	16	29	17	14	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	26	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	29	28	22	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	29	26	18	29	23	16	29	20	14	26	18	13	23	17	12	21	15	10	19	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	6	8	6	6
			Exposed	23	17	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	29	22	16	27	19	14	24	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	29	23	19	29	21	17	29	19	15	29	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	6	5	5	6	5	5
	D	0-7	Interior	29	21	15	27	19	13	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	19	14	9	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	25	18	13	22	16	12	20	14	10	18	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	29	19	16	29	17	14	27	15	13	24	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	7	5	4	5	4	3
		27-45	Interior	27	24	19	24	21	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	4	6	5	5	7	6	5	6	5	4
10	B	0-7	Interior	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	23	23	17	23	22	15	23	19	13	23	17	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	23	23	23	23	23	21	23	23	18	23	23	16	23	20	15	23	19	13	23	17	12	20	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	23	20	15	23	18	13	22	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	27	27	27	27	27	25	27	27	22	27	25	20	27	22	18	27	20	16	27	18	15	27	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	27	22	18	27	20	16	27	17	14	27	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	26	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	29	28	22	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	23	23	18	23	23	16	23	20	14	23	18	13	23	17	12	21	15	10	19	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	6	8	6	6
			Exposed	23	17	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	23	22	16	23	19	14	23	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	27	23	19	27	21	17	27	19	15	27	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	6	5	5	6	5	5
	D	0-7	Interior	23	21	15	23	19	13	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	19	14	9	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	23	18	13	22	16	12	20	14	10	18	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	27	19	16	27	17	14	27	15	13	24	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	7	5	4	5	4	3
		27-45	Interior	22	22	19	22	22	17	22	22	19	22	22	17	22	22	16	22	22	15	22	22	14	22	22	12	22	22	10	22	22	8	22	22	7	22	22	5	22	22	4
			Exposed	22	22	16	22	22	14	22	22	17	22	22	15	22	22	13	22	22	11	22	22	10	22	22	8	22	22	7	22	22	5	22	22	4	22	22	3	22	22	3
20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	17	17	17	17	17	15	17	17	13	17	17	12	17	16	11	17	14	10	17	13	9	15	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	17	17	15	17	17	13	17	16	12	17	14	11	17	13	10	16	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	15	13	21	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	21	21	18	21	20	16	21	17	14	21	16	13	21	14	12	21	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	23	23	22	23	23	19	23	22	17	22	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	15	10	17	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	6	7	6	6
			Exposed	17	17	11	17	15	10	17	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	6	7	5	5	6	5	5	6	6	4	5	6	4
		7-20	Interior	17	17	16	17	17	14	17	17	12	17	15	11	17	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	17	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	21	21	19	21	21	17	21	19	15	21	17	14	21	15	12	21	14	11	21	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	21	15	12	21	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	23	23	23	23	23	23	23	23	18	23	21	16	21	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	6	5	5	6	5	5
	D	0-7	Interior	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	17	12	9	16	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	17	14	9	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	17	17	13	17	16	12	17	14	10	17	13	9	16	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	6	7	5	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	22	19	16	22	17	14	22	15	13	22	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	7	5	4	5	4	3
		27-45	Interior	24	24	19	24	21	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	4	6	5	5	7	6	5	6	5	4

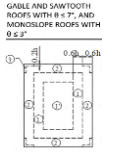
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

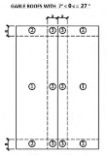
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

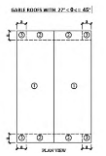
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

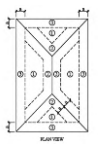












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

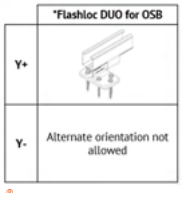
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																					
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	7	13	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	15	13	17	13	11	17	11	9	17	10	8	15	9	7	13	8	6
			Exposed	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	13	11	17	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	20	20	20	20	20	19	20	20	17	20	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	10	13	13	10	13	11	8	13	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	13	13	11	13	13	10	13	13	9	13	12	8	13	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	14	14	10	14	12	9	14	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	17	17	17	17	17	17	17	17	15	17	17	14	17	15	12	17	14	11	17	12	10	17	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	5	4	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	18	20	20	16	20	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	20	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	4	7	5	5	6	5	4
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	13	13	9	13	12	8	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	14	14	13	14	14	12	14	14	10	14	13	9	14	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	14	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	6	7	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	18	18	16	18	17	14	18	15	13	18	14	11	18	12	10	18	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	18	12	10	18	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	21	21	19	21	21	17	21	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	6
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4
40	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	9	7	12	8	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	10	12	12	9	12	11	8	12	10	7	12	8	6	11	8	5	10	7	5	8	6	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	10	8	12	9	7	11	8	6	10	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	11	9	15	10	8	14	9	7	13	8	6
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	13	11	15	12	10	15	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	16	16	13	15	14	11	14	12	10	12	11	8	11	10	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	7	12	9	7	12	8	6
			Exposed	12	12	11	12	12	10	12	12	9	12	12	8	12	11	7	12	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	12	10	15	10	9	14	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	16	16	13	16	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	17	17	15	17	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	13	13	9	13	12	8	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	12	10	15	10	9	14	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	16	16	13	16	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	17	17	15	17	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
50	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	6	10	7	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	7	11	8	6	9	7	5	8	6	6	7	5	5	6	6	4	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	10	13	10	8	13	8	7	13	7	6	11	6	5	10	6	7	8	5	6
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	11	13	12	10	12	11	8	11	10	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5	7	6	5
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	6	6
			Exposed	11	11	11	11	11	10	11	11	9	11	11	8	11	11	7	11	10	7	11	9	6	10	7	5	9	6	6	7	5	5	6	5	5	6	6	4	5	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	9	12	9	7	12	8	6	11	7	5	10	6	5	9	5	6	8	5	4
			Exposed	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	12	13	13	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	8	12	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	12	11	8	12	10	7	12	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	11	9	14	10	8	13	9	7	12	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	14	12	10	14	11	9	14	10	8	14	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	16	16	16	16	16	16	16	16	15	15	15	14	15	15	12	14	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	6
			Exposed	16	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4

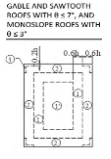
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

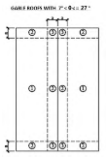
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

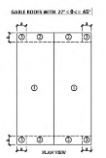
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

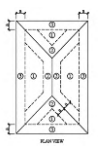












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

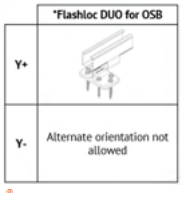
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	7	9	8	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	6	9	8	5	9	7	5	8	6	6	7	5	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	6	7	5	6
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	9	7	10	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	8	7	11	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	10	11	11	8	11	10	7			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	6	9	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	7	7	5	6	7	5	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	6	9	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	5	10	6	5	9	5	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	10	11	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	7	5	5	6	5	5
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	6	10	8	5	10	7	5	8	6	7	7	5	6	6	5	4	5	5	4	6	5	3
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	7	10	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	10	10	8	10	10	7	10	9	7	10	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	11	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	12	13	13	11	13	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	14	14	12	14	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	7	5	4	7	5	4	6	5	3
70	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	8	7	10	7	6	10	6	5	10	5	7	8	5	6
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	10	10	10	8	10	10	7
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	7	5	8	6	7	7	5	6	6	5	5	6	6	4	5	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	7	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	8	7	5	8	6	7	7	5	6	6	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	7	9	8	6	9	7	5	9	6	5	8	5	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	11	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	5	4
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	5
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	8	6	9	8	6	9	8	6	9	8	6
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	7	9	9	7	9	9	7	9	8	6	9	8	6	9	8	6	9	8	6	9	8	6
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
80	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	5
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	6	6	5	7	5	6	6	4	5	5	6	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	6	7	7	5	7	6	5	6	6	4	5	5	4	6	5	4	6	5	4	5	5	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	8	5	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	6	5	8	5	6	7	5	4	7	5	4	6	5	3
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	9	9	9	9	9	8	9	9	7	9	7	6	7	6	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	6	6	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	6	7	7	5	7	6	4	5	5	4	6	5	3	6	5	3	6	5	3	5	4	3
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	8	8	8	8	8	7	8	8	7	8	8	6	8	7	5	8	7	5	8	7	5	8	6	5	6	6	4	7	5	3	6	5	3	6	5	3	5	4	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	6	5	8	5	6	8	5	3	7	5	3	5	4	3
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	6	9	7	5	9	6	4	7	5	4	6	4	3	5	4	3	5	4	3	4	3	3
		27-45	Interior	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	10	9	9	9	8	8	7	8	8	6	8	7	5	7	6	5	6	5	4
			Exposed	12	12	12	12	12	11	12	12	10	11	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	7	5	4	7	5	4	6	5	3

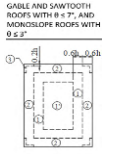
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

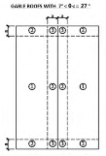
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

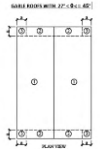
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

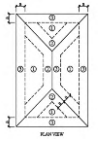












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	6	6	5	6
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	6	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	5	7	8	5	6
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	9	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	7	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	4
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	7	5	8	6	5	8	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	8	8	7	8	7	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	6	6	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	6	5	6	7	5	6	4	5	5	4	6	5	3	5	3
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	7	7	5	6	6	6	7	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	7	8	8	6	8	7	5	8	6	5	8	5	6	7	6	5	8	5	5	4	5	3
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	7	8	8	6	8	7	5	7	6	5	6	5	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4
100	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	6	5	5	6	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	6	5	7	5	7	7	5	6
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	8	6	8	7	5	7	6	5
	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	6
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5	5	6	4	5	6	4
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	7	5	5	6	4	5	5	3
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	7	6	5	7	5	6	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	7	6	5	7	5	6	7	7	5	7	6	5	7	6	4
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	7	8	7	6	7	6	5	6	5	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	7	6	5	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	4
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	7	6	8	7	5	8	6	7	8	6	5	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	8	7	7	5	7	6	5	6	5	6	6	5	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4

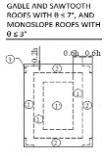
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

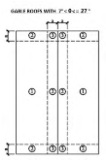
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

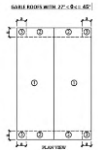
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

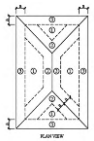












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

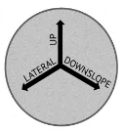
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

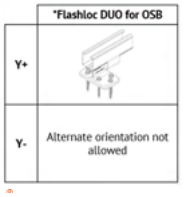
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	53	56	56	47	56	56	42	56	54	37	56	49	34	56	44	31	56	40	28	47	34	23	40	29	20	34	25	17	30	21	15	26	19	13	23	17	12
			Exposed	56	48	34	56	43	30	54	38	27	48	34	24	43	31	22	39	28	20	36	26	18	30	22	15	26	18	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	56	56	46	56	56	41	56	50	36	56	45	33	56	40	30	51	37	27	47	33	25	39	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	56	40	29	50	36	26	44	32	23	40	29	21	36	26	19	33	24	17	30	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	57	57	56	57	57	50	57	54	44	57	49	40	57	44	36	57	40	33	57	36	30	53	30	25	45	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	57	44	36	57	39	32	57	35	28	55	31	26	49	28	23	45	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	57	57	57	57	57	57	57	57	53	57	57	48	57	55	43	56	50	39	51	45	36	43	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	57	55	43	54	49	38	49	43	34	44	39	31	40	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	56	51	36	56	45	32	56	41	28	51	36	25	46	33	23	42	30	21	38	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	46	33	23	41	29	20	36	26	18	33	23	16	29	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	56	43	31	53	38	28	47	34	25	42	31	22	38	28	20	35	25	18	32	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	38	27	20	34	24	18	30	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	57	46	38	57	41	34	57	37	30	57	33	27	52	30	25	47	27	22	43	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	52	30	24	46	26	22	41	24	20	37	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	57	57	45	57	51	40	52	46	36	46	41	33	42	37	29	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	56	42	29	52	37	26	47	34	23	42	30	21	38	27	19	34	25	17	31	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	38	27	19	33	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	49	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	31	23	17	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	57	38	31	57	34	28	53	30	25	48	27	22	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	43	25	20	38	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	54	48	38	48	43	33	43	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
10	B	0-7	Interior	45	45	45	45	45	45	45	45	42	45	45	37	45	45	34	45	44	31	45	40	28	45	34	23	40	29	20	34	25	17	30	21	15	26	19	13	23	17	12
			Exposed	45	45	34	45	43	30	45	38	27	45	34	24	43	31	22	39	28	20	36	26	18	30	22	15	26	18	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	45	45	45	45	45	41	45	45	36	45	45	33	45	40	30	45	37	27	45	33	25	39	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	45	40	29	45	36	26	44	32	23	40	29	21	36	26	19	33	24	17	30	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	52	52	52	52	52	50	52	52	44	52	49	40	52	44	36	52	40	33	52	36	30	52	30	25	45	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	52	44	36	52	39	32	52	35	28	52	31	26	49	28	23	45	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	56	56	56	56	56	56	56	56	53	56	56	48	56	55	43	56	50	39	51	45	36	43	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	56	55	43	54	49	38	49	43	34	44	39	31	40	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	45	45	36	45	45	32	45	41	28	45	36	25	45	33	23	42	30	21	38	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	45	33	23	41	29	20	36	26	18	33	23	16	29	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	45	43	31	45	38	28	45	34	25	42	31	22	38	28	20	35	25	18	32	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	38	27	20	34	24	18	30	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	52	46	38	52	41	34	52	37	30	52	33	27	52	30	25	47	27	22	43	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	52	30	24	46	26	22	41	24	20	37	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	56	56	45	56	51	40	52	46	36	46	41	33	42	37	29	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	45	42	29	45	37	26	45	34	23	42	30	21	38	27	19	34	25	17	31	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	38	27	19	33	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	45	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	31	23	17	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	53	38	31	53	34	28	53	30	25	48	27	22	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	43	25	20	38	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	54	48	38	48	43	33	43	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
20	B	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	33	23	33	29	20	33	25	17	30	21	15	26	19	13	23	17	12
			Exposed	33	33	33	33	33	30	33	33	27	33	33	24	33	31	22	33	28	20	33	26	18	30	22	15	26	18	13	22	16	12	19	14	10	17	12	9	15	11	12
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	33	25	34	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	34	34	29	34	34	26	34	32	23	34	29	21	34	26	19	33	24	17	30	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	40	41	41	36	41	40	33	41	36	30	41	30	25	41	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	41	41	36	41	39	32	41	35	28	41	31	26	41	28	23	41	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	45	36	43	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	46	46	43	46	46	38	46	43	34	44	39	31	40	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	33	33	33	33	33	32	33	33	28	33	33	25	33	33	23	33	30	21	33	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	33	33	23	33	29	20	33	26	18	33	23	16	29	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	34	34	31	34	34	28	34	34	25	34	31	22	34	28	20	34	25	18	32	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	34	27	20	34	24	18	30	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	41	41	38	41	41	34	41	37	30	41	33	27	41	30	25	41	27	22	41	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	41	30	24	41	26	22	41	24	20	37	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	46	46	45	46	46	40	46	46	36	46	41	33	42	37	29	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	33	33	29	33	33	23	33	33	30	21	33	27	19	33	25	17	31	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10	11	8
			Exposed	33	27	19	33	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	34	34	26	34	31	23	34	28	21	34	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	31	23	17	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	43	38	31	43	34	28	43	30	25	43	27	22	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	43	25	20	38	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	47	47	38	47	43	33	43	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

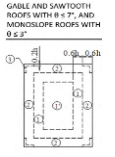
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

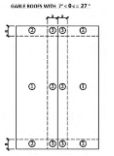
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

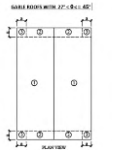
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

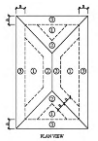












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

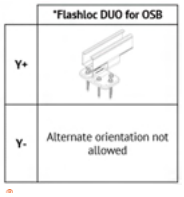
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	27	20	27	25	17	27	21	15	26	19	13	23	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	26	18	27	22	15	26	18	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	24	18	27	21	15	25	18	13	22	16	12	19	14	10
			Exposed	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	24	17	27	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	30	25	34	26	21	34	22	18	34	20	16	30	17	14	26	15	13
			Exposed	34	34	34	34	34	32	34	34	28	34	31	26	34	28	23	34	26	21	34	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	38	38	38	38	38	38	38	38	34	38	38	31	38	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	25	27	27	27	23	27	27	21	27	27	19	27	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	27	27	23	27	27	20	27	26	18	27	23	16	27	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	25	18	27	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	27	27	20	27	24	18	27	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	34	34	34	34	34	34	34	34	30	34	33	27	34	30	25	34	27	22	34	25	20	34	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	34	30	24	34	26	22	34	24	20	34	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	38	38	38	38	38	38	38	38	36	38	38	33	38	37	29	37	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	38	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	27	27	27	27	27	26	27	27	23	27	27	21	27	27	19	27	25	17	27	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	27	27	19	27	24	17	27	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	27	27	26	27	27	23	27	27	21	27	25	19	27	23	17	27	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	27	23	17	27	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	36	36	31	36	34	28	36	30	25	36	27	22	36	25	20	36	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	36	25	20	36	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	40	40	38	40	40	33	40	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	17	25	21	15	25	19	13	23	17	12
			Exposed	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	25	18	25	22	15	25	18	13	22	16	11	19	14	10	17	12	9	15	11	12		
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	24	18	25	21	15	25	18	13	22	16	12	19	14	10
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	26	21	29	22	18	29	20	16	28	17	14	26	15	13
			Exposed	29	29	29	29	29	29	29	29	28	29	29	26	29	28	23	29	26	21	29	23	19	29	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	32	32	26	30	28	22	27	25	19	24	22	17	21	19	15
			Exposed	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	16	25	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	25	25	23	25	25	20	25	25	18	25	23	16	25	21	15	25	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	18	25	23	17	25	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	25	25	20	25	24	18	25	22	16	25	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	27	22	29	25	20	29	21	17	28	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	29	29	24	29	26	22	29	24	20	29	21	18	29	19	16	29	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	32	32	27	31	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	33	33	29	33	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	21	26	26	19	26	25	17	26	23	16	26	19	13	22	17	12	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	26	26	19	26	24	17	26	22	15	26	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	27	27	26	27	27	23	27	27	21	27	25	19	27	23	17	27	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	27	23	17	27	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	28	31	30	25	31	27	22	31	25	20	31	23	19	31	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	31	25	20	31	22	18	31	20	16	31	18	15	28	16	13	25	17	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	35	35	35	35	35	33	35	35	30	34	34	27	33	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
50	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	19	13	21	17	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	15	21	18	13	21	18	13	21	16	12	19	14	10	17	12	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	18	13	21	16	12	19	14	10
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	18	13	21	16	11	18	13	10	16	12	9	14	10	12	12	9	10	11	12	9
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	22	18	25	20	16	24	17	14	23	15	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	20	25	25	19	25	25	16	25	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	26	27	27	22	25	25	19	24	22	17	21	19	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	20	14	21	17	12	20	15	10	18	13	9	16	11	12
			Exposed	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	14	21	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	19	14	21	16	12	20	14	10	17	12	9	15	11	12	13	10	11			
			Exposed	21	21	20	21	21	18	21	21	16	21	20	15	21	18	13	21	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	21	17	25	18	15	24	15	13	23	13	11	20	12	10	18	10	9
			Exposed	25	25	24	25	25	22	25	24	20	25	21	18	25	19	16	25	18	14	25	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	28	28	25	26	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	29	29	29	29	29	26	29	29	23	29	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	21	23	23	23	19	23	23	17	23	23	16	23	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	23	23	19	23	23	17	23	22	15	23	19	14	23	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	23	23	17	23	20	15	23	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	22	27	25	20	27	23	19	27	21	17	26	17	14	25	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	27	25	20	27	22	18	27	20	16	27	18	15	27	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	31	31	31	31	31	31	31	30	30	30	30	27	29	29	24	28	28	22	27	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	31	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

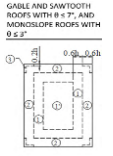
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

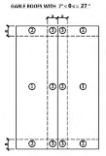
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

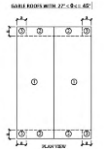
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

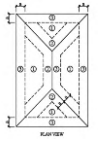












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	12						
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	17	12	9	15	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	12	18	14	10			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	13	18	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	16	22	20	16	22	17	14	21	15	13
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	20	16	22	17	14	22	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	24	24	22	23	23	19	22	22	17	21	19	15			
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	10	18	13	9	16	11	12
			Exposed	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	14	18	18	12	18	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8			
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	10	11		
			Exposed	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	16	12	18	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	17	22	18	15	21	15	13	20	13	11	19	12	10	18	10	9		
			Exposed	22	22	22	22	22	22	22	22	20	22	21	18	22	22	19	22	18	14	22	16	13	22	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	21	22	22	18	21	19	15	19	17	13	17	15	12	15	13	10
			Exposed	26	26	26	26	26	26	26	23	26	26	21	26	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10		
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	19	13	20	16	11	19	14	10	17	12	9	15	11	12	13	9	10	
			Exposed	20	20	19	20	20	17	20	20	15	20	19	14	20	18	12	20	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	15	20	19	14	20	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9		
			Exposed	20	20	17	20	20	15	20	18	13	20	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	19	24	21	17	23	17	14	22	15	12	21	13	11	19	11	9	17	10	12	15	9	11		
			Exposed	24	24	20	24	22	18	24	20	16	24	18	15	24	16	13	24	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	28	28	28	28	28	28	28	28	28	27	27	27	26	26	24	26	26	22	25	25	20	23	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	28	28	24	28	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
70	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	14	10	15	12	9	15	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	14	10			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	11	16	13	10	16	12	9	14	10	12	9		
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	19	13	10	17	10	12			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	19	20	20	17	19	19	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	23	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	12
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	12	13	10	10	12	13	9	10	11	8		
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	11	16	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10
			Exposed	16	16	16	16	16	16	16	16	16	15	16	16	15	16	16	13	16	16	12	16	15	11	16	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	15	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	19	13	10	17	10	12			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	19	20	20	17	19	19	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	23	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	16	11	17	14	10	17	12	9	15	11	12	13	9	10
			Exposed	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	12	17	14	10	16	12	9	14	10	12	12	9	9
			Exposed	17	17	17	17	17	15	17	17	13	17	16	12	17	15	11	17	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	19	13	19	13	11	18	11	9	17	10	12	15	9	11
			Exposed	21	21	20	21	21	18	21	20	16	21	18	15	21	16	13	21	15	12	21	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	23	23	22	23	23	20	21	21	17	20	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	25	25	24	25	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9			
80	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10			
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12			
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	19	19	19	19	19	17	18	18	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	10	13	13	9	13	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	10	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	12	14	14	11	14	13	9	13	11	12	13	10	10	12	13	9	10	11	8	9	10	7
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	13	17	13	11	16	12	10	16	10	9
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	13	17	14	11	17	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	19	19	19	18	18	15	17	17	13	16	15	12	15	13	10
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	9	15	11	12	13	9	10
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	15	10	15	15	10	15	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	12	9	14	10	12	12	9	9
			Exposed	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	14	18	15	12	18	13	11	17	11	9	16	10	12	15	9	11
			Exposed	19	19	19	19	19	18	19	19	16	19	18	15	19	16	13	19	15	12	19	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	20	20	17	19	19	15	18	16	13	16	14	11	14	12	10	12	10	12	11	9
			Exposed	23	23	23	23	23	22	23	23	20	23	22	18	22	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

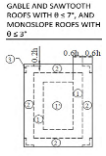
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

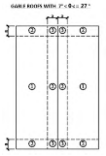
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

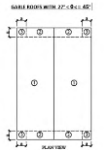
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

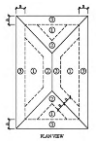












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	10	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	10	15	11	9	15	10	12
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	10	10	12	13	9	10	11	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	12	9	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	12	9	10	11	8	9	10	7	9	8	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	11	15	12	10	14	10	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	12	10	15	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	17	15	16	16	13	15	15	12	15	13	10	10
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	18	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	11	12	13	9	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	13	10	12	12	9	10	11	12	9
			Exposed	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	15	12	16	13	11	16	11	9	15	10	12	15	9	11
			Exposed	17	17	17	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	11	17	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	19	19	19	17	18	18	15	17	16	13	16	14	11	14	12	10	12	11	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	20	20	16	20	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	10	12	11	9
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	14	11	9	14	10	12
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	13	16	14	11	14	12	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12	11	10	10	11	13	9	10	11	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	11	11	11	9	11	10	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	12	10	13	10	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	10	8	14	9	11	13	12	10	12	10	9
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	16	15	15	15	13	14	14	12	14	13	10
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	9	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	11	12	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	10	12	12	9	10	11	12	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	14	10	12	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	11	9	15	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	16	16	15	16	16	13	15	14	11	14	12	10	12
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	18	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

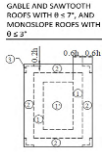
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

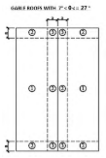
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

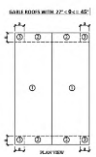
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

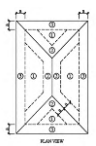












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

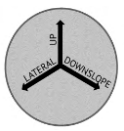
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

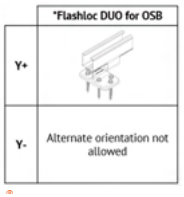
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	32	34	34	28	34	34	25	34	33	23	34	29	20	34	27	18	34	24	17	28	20	14	24	17	12	21	15	10	18	13	9	16	11	8	14	10	7
			Exposed	34	29	20	34	26	18	32	23	16	29	21	14	26	19	13	24	17	12	22	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	34	34	28	34	34	25	34	30	22	34	27	20	34	24	18	31	22	16	28	20	15	24	17	12	20	14	11	17	12	9	15	11	8	13	9	7	12	8	6
			Exposed	34	24	18	30	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	35	35	34	35	35	30	35	33	27	35	29	24	35	27	22	35	24	20	35	22	18	32	18	15	27	16	13	24	13	11	20	12	10	18	10	8	16	9	7
			Exposed	35	26	22	35	23	19	35	21	17	33	19	15	30	17	14	27	15	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	35	35	35	35	35	32	35	35	29	35	33	26	34	30	24	31	27	22	26	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9			
			Exposed	35	33	26	33	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	34	31	22	34	28	19	34	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	28	20	14	25	18	12	22	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	34	26	19	32	23	17	29	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	23	17	12	20	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	35	28	23	35	25	20	35	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	31	18	15	28	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	35	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	9	6	7	6	5	6
	D	0-7	Interior	34	26	18	32	23	16	28	20	14	25	18	13	23	16	11	21	15	10	19	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	23	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	30	21	16	26	19	14	24	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	4	6	5	5	5	4	6	3
		20-27	Interior	35	23	19	35	21	17	32	18	15	29	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	33	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	5	7	5	5	6	5	5
10	B	0-7	Interior	28	28	28	28	28	28	28	28	25	28	28	23	28	28	20	28	27	18	28	24	17	28	20	14	24	17	12	21	15	10	18	13	9	16	11	8	14	10	7
			Exposed	28	28	20	28	26	18	28	23	16	28	21	14	26	19	13	24	17	12	22	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	28	28	28	28	28	25	28	28	22	28	27	20	28	24	18	28	22	16	28	20	15	24	17	12	20	14	11	17	12	9	15	11	8	13	9	7	12	8	6
			Exposed	28	24	18	28	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	32	32	32	32	32	30	32	32	27	32	29	24	32	27	22	32	24	20	32	22	18	32	18	15	27	16	13	24	13	11	20	12	10	18	10	8	16	9	7
			Exposed	32	26	22	32	23	19	32	21	17	32	19	15	30	17	14	27	15	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	34	34	34	34	34	34	34	34	32	34	34	29	34	33	26	34	30	24	31	27	22	26	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9
			Exposed	34	33	26	33	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	28	28	22	28	28	19	28	25	17	28	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	28	20	14	25	18	12	22	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	28	26	19	28	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	23	17	12	20	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	32	28	23	32	25	20	32	22	18	32	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	31	18	15	28	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	34	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	28	26	18	28	23	16	28	20	14	25	18	13	23	16	11	21	15	10	19	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	23	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	28	21	16	28	19	14	24	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	4	6	5	5	5	4	6	3
		20-27	Interior	33	23	19	33	21	17	32	18	15	29	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	33	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	5	7	5	5	6	5	5
20	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	20	14	20	17	12	20	15	10	18	13	9	16	11	8	14	10	7
			Exposed	20	20	20	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	20	15	21	17	12	20	14	11	17	12	9	15	11	8	13	9	7	12	8	6
			Exposed	21	21	18	21	21	16	21	19	14	21	17	13	21	16	11	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	25	25	25	25	25	25	25	25	25	24	25	22	25	24	20	25	22	18	25	18	15	25	16	13	24	13	11	20	12	10	18	10	8	16	9	7			
			Exposed	25	25	22	25	23	19	25	21	17	25	19	15	25	17	14	25	15	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	27	22	26	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9			
			Exposed	28	28	26	28	28	23	28	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	20	20	20	20	20	19	20	20	17	20	20	15	20	20	14	20	18	13	20	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	20	20	14	20	18	12	20	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	21	21	19	21	21	17	21	20	15	21	18	13	21	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	21	17	12	20	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	25	25	23	25	25	20	25	22	18	25	20	16	25	18	15	25	16	13	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	25	18	15	25	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	28	28	27	28	28	24	28	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	20	20	18	20	20	16	20	20	14	20	18	13	20	16	11	20	15	10	19	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	20	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	21	21	16	21	19	14	21	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	5	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	4	6	5	5	5	4	6	3
		20-27	Interior	26	23	19	26	21	17	26	18	15	26	17	14	26	15	12	24	14	11	22	12	10	18	10	9	7	13	8	6	12	7	5	10	6	5	9	5	6		
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	5	7	5	5	6	5	5

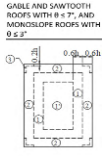
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

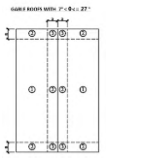
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

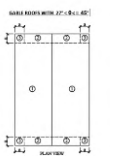
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

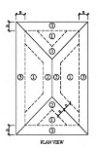












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

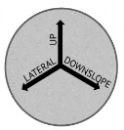
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

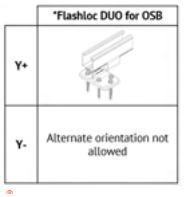
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	10	16	13	9	16	11	8	14	10	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	16	11	16	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	16	14	11	16	12	9	15	11	8	13	9	7	12	8	6	10	7	6
			Exposed	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	18	15	21	16	13	21	13	11	20	12	10	18	10	8	16	9	7
			Exposed	21	21	21	21	21	19	21	21	17	21	19	15	21	17	14	21	15	13	21	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	18	22	20	15	19	17	13	17	15	12	15	13	10	13	11	9			
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	12	16	16	11	16	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	16	16	14	16	16	12	16	16	11	16	14	10	16	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	16	16	12	16	15	11	16	13	10	16	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	16	13	21	15	12	21	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	21	18	15	21	16	13	21	14	12	21	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	23	23	18	22	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	15	10	16	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	16	16	11	16	15	10	16	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	12	16	15	11	16	14	10	16	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	16	14	10	16	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	22	22	19	22	21	17	22	18	15	22	17	14	22	15	12	22	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	22	15	12	22	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	20	25	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
40	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	8	14	10	7
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	7			
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	11	15	12	9	15	11	8	13	9	7	12	8	6
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	17	12	10	17	10	8	16	9	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	14	12	17	12	10	17	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	15	18	17	13	17	15	12	15	13	10	13	11	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	15	15	14	15	15	12	15	15	11	15	14	10	15	13	9	15	12	8	15	11	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	14	10	15	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	15	15	12	15	15	11	15	13	10	15	12	9	15	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	10	17	11	9	16	9	8	14	8	7	12	7	6	11	6	5		
			Exposed	17	17	15	17	16	13	17	14	12	17	13	11	17	12	10	17	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	20	20	18	20	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	15	10	16	14	9	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	16	16	11	16	15	10	16	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	12	16	15	11	16	14	10	16	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	16	14	10	16	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	19	19	19	19	19	17	19	18	15	19	17	14	19	15	12	19	14	11	19	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	19	15	12	19	13	11	19	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	21	21	21	21	21	20	21	21	18	21	21	16	20	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
50	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	8	13	10	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	8	13	10	7	12	8	6	10	7	5	9	6	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	13	11	8	13	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	10	13	13	10	13	13	11	13	11	8	13	9	7	11	8	6	10	7	5	8	6	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	8	14	9	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	12	10	15	12	8	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	15	16	16	13	15	15	12	15	13	10	13	11	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	8	13	10	7	12	9	6	11	8	5	9	7	5
			Exposed	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	13	11	13	12	9	11	8	6	11	8	6	10	7	5	9	6	7	7	5	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	8	13	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	12	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	10	15	11	9	14	9	8	14	8	7	12	7	6	11	6	5
			Exposed	15	15	15	15	15	13	15	14	12	15	13	11	15	12	10	15	11	9	15	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16	17	17	15	16	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	18	18	18	18	18	16	18	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	14	9	14	11	8	14	10	7	12	8	6	10	7	5	9	6	6	8	6	6
			Exposed	14	14	11	14	14	10	14	13	9	14	12	8	14	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	14	14	10	14	12	9	14	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	14	11	16	12	10	16	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	16	15	12	16	13	11	16	12	10	16	11	9	16	10	8	15	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	19	19	19	19	19	19	19	18	18	18	18	16	18	18	15	17	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	19	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5

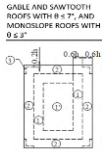
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

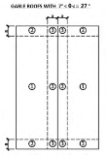
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

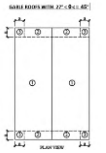
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

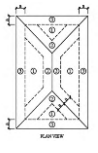












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

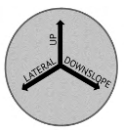
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

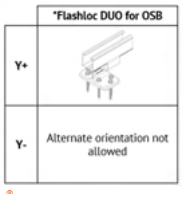
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	8	11	9	7	11	8	6	10	7	5	8	6	7	7	5	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	13	9	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	8	13	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	12	13	13	11	13	10	9
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	7	11	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	6			
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6	10	7	5	9	6	7	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	11	9	13	9	8	12	8	7	12	7	6	11	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	15	14	14	12	14	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	14	16	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	12	12	11	12	12	10	12	12	9	12	12	8	12	11	7	12	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	12	10	14	10	9	13	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	14	14	12	14	13	11	14	12	10	14	11	9	14	10	8	14	9	7	14	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	16	16	16	15	16	16	13	15	15	12	14	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	17	17	15	17	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	7	5	5	6	5	4	5	4	3
70	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7		
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	10	8	11	9	7
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	10	12	10	8	11	9	7
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	12	12	10	12	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	5	9	6	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	9	7	9	8	5	9	6	7	8	5	6	7	5	5	6	6	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	10	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	8	7	9	6	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	10	7	10	9	6	10	7	5	9	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	6	10	7	5	9	6	7	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	10	13	10	9	12	9	7	12	8	6	11	7	5	10	6	5	9	5	6
			Exposed	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	12	13	13	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	14	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	5	6	5	4	5	4	3
80	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7		
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	10	11	11	9
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	7	5	5	8	6	7	5	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	7	6	10	6	5	9	5	7	8	7	6	7	6	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	11	11	11	11	11	9	10	10	8	10	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	8	7	6	7	6	4
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	6	9	9	7	9	8	6	9	8	6	7	5	5	8	6	7	5	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	6
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	5	10	6	5	9	5	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	5	10	6	7	9	5	6	7	7	5	6	6	5	6	5	4
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	13	12	12	12	10	11	11	8	9	8	7	8	7	6	7	6	5	6	5	4
			Exposed	14	14	14	14	14	13	14	14	12	14	13	11	13	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5

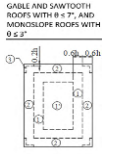
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

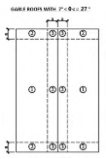
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

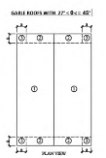
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

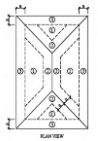












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

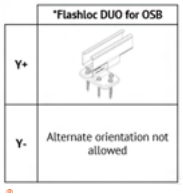
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7			
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6			
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	9	7			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	10	10	10	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6	7	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	6			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	9	7	9	7	6	9	6	5			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	9	8	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	7	6	5	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	7	5	8	6	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	8	7	8	7	5	8	6	7	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	9	7	5	9	6	5	9	5	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	7	10	7	5	10	6	7	9	5	6	7	5	6	6	5	4	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	11	10	11	11	9	10	10	8	9	8	7	8	7	6	7	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	12	12	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5
100	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	8	7	8	7	6
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	6			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	7	6	8	7	5	8	6	7	7	5	6	7	5	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	8	7	8	7	6
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	5	7	6	5			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	5	8	5	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	5	9	6	7	9	5	6	7	5	6	6	5	4	6	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	10	10	10	9	9	9	8	9	8	7	8	7	6	7	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	11	11	10	11	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	7	6	5

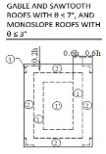
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

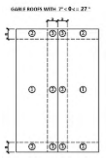
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

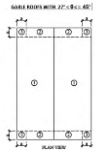
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

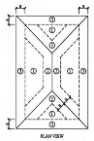












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	57	57	54	57	57	48	57	57	43	57	55	38	57	50	34	57	45	31	57	41	29	48	34	24	41	29	20	35	25	18	30	22	15	27	19	14	24	17	12
			Exposed	57	49	34	57	44	31	55	39	27	49	35	25	44	32	22	40	29	20	37	26	18	31	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	57	57	47	57	57	42	57	51	37	57	46	33	57	41	30	52	38	27	48	34	25	40	29	21	34	25	18	29	21	16	25	18	14	22	16	12	20	14	11
			Exposed	57	41	30	51	37	27	45	33	24	41	29	22	37	27	20	33	24	18	31	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	58	58	57	58	58	51	58	55	45	58	50	41	58	45	37	58	41	33	58	37	30	54	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	58	45	37	58	40	33	58	35	29	56	32	26	50	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	59	59	59	59	59	59	59	59	59	59	59	49	59	56	44	57	51	40	52	46	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	59	56	44	56	50	39	50	44	35	45	40	31	40	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	57	52	36	57	46	32	57	41	29	52	37	26	47	34	24	43	31	21	39	28	20	33	23	16	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	47	34	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	57	44	32	54	39	28	48	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	39	28	21	35	25	18	31	22	16	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	58	47	39	58	42	34	58	38	31	58	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	59	59	46	59	53	41	53	47	37	47	42	33	43	38	30	39	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	57	43	30	54	38	27	48	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	39	28	19	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	50	36	26	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	58	39	32	58	35	29	54	31	26	49	28	23	44	25	21	40	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	38	49	43	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
10	B	0-7	Interior	46	46	46	46	46	46	46	46	43	46	46	38	46	46	34	46	45	31	46	41	29	46	34	24	41	29	20	35	25	18	30	22	15	27	19	14	24	17	12
			Exposed	46	46	34	46	44	31	46	39	27	46	35	25	44	32	22	40	29	20	37	26	18	31	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	47	47	47	47	47	42	47	47	37	47	46	33	47	41	30	47	38	27	47	34	25	40	29	21	34	25	18	29	21	16	25	18	14	22	16	12	20	14	11
			Exposed	47	41	30	47	37	27	45	33	24	41	29	22	37	27	20	33	24	18	31	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	53	53	53	53	53	51	53	53	45	53	50	41	53	45	37	53	41	33	53	37	30	53	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	53	45	37	53	40	33	53	35	29	53	32	26	50	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	57	57	57	54	57	57	49	57	56	44	57	51	40	52	46	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	57	56	44	56	50	39	50	44	35	45	40	31	40	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	46	46	36	46	46	32	46	41	29	46	37	26	46	34	24	43	31	21	39	28	20	33	23	16	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	46	34	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	47	44	32	47	39	28	47	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	39	28	21	35	25	18	31	22	16	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	53	47	39	53	42	34	53	38	31	53	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	57	57	46	57	53	41	53	47	37	47	42	33	43	38	30	39	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	46	43	30	46	38	27	46	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	39	28	19	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	47	36	26	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	55	39	32	55	35	29	54	31	26	49	28	23	44	25	21	40	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	38	49	43	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
20	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	29	34	34	24	34	29	20	34	25	18	30	22	15	27	19	14	24	17	12
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	32	22	34	29	20	34	26	18	31	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	34	25	35	29	21	34	25	18	29	21	16	25	18	14	22	16	12	20	14	11
			Exposed	35	35	30	35	35	27	35	33	24	35	29	22	35	27	20	33	24	18	31	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	41	42	42	37	42	41	33	42	37	30	42	31	26	42	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	42	42	37	42	40	33	42	35	29	42	32	26	42	29	24	42	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	46	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	47	47	44	47	47	39	47	44	35	45	40	31	40	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	34	34	34	34	34	32	34	34	29	34	34	26	34	34	24	34	31	21	34	28	20	33	23	16	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	34	34	23	34	30	21	34	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	35	35	32	35	35	28	35	35	25	35	31	23	35	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	35	28	21	35	25	18	31	22	16	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	42	42	39	42	42	34	42	38	31	42	34	28	42	31	25	42	28	23	42	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	42	30	25	42	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	47	47	46	47	47	41	47	47	37	47	42	33	43	38	30	39	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	34	34	30	34	34	27	34	34	24	34	31	22	34	28	20	34	25	18	32	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	34	28	19	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	35	35	26	35	32	24	35	29	21	35	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	44	39	32	44	35	29	44	31	26	44	28	23	44	25	21	40	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	48	48	38	48	43	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

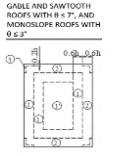
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

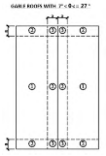
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

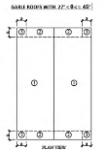
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

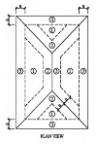












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

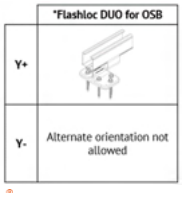
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	20	27	25	18	27	24	22	15	27	19	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	22	16	26	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18	27	21	16	25	18	14	22	16	12	20	14	11	
			Exposed	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	18	27	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	31	26	35	27	22	35	23	19	35	20	16	30	18	14	27	16	13
			Exposed	35	35	35	35	35	33	35	35	29	35	32	26	35	29	24	35	26	22	35	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	39	39	39	39	39	39	39	39	35	39	39	31	39	36	28	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	23	16	27	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	27	27	23	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	26	19	27	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	27	27	21	27	25	18	27	22	16	27	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	35	35	35	35	35	34	35	35	31	35	34	28	35	31	25	35	28	23	35	25	21	35	21	18	31	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	35	30	25	35	27	22	35	24	20	35	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	37	39	39	33	39	38	30	38	35	27	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	39	38	30	38	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	27	27	19	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	26	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	36	36	32	36	35	29	36	31	26	36	28	23	36	25	21	36	23	19	36	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	36	25	21	36	22	18	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	9	11	9	11	10	8	10	9	7
		27-45	Interior	41	41	38	41	41	34	41	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	18	25	22	15	25	19	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	18	25	22	16	25	19	13	23	16	11	20	14	10	17	12	9	15	11	12
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	25	18	26	21	16	25	18	14	22	16	12	20	14	11
			Exposed	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	24	18	26	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	23	19	29	20	16	28	18	14	27	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	29	26	22	29	24	20	29	20	17	29	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	33	33	26	31	29	23	28	25	20	25	22	17	22	20	15
			Exposed	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	20	25	23	16	25	20	14	24	17	12	21	15	11	18	13	9	16	12	8			
			Exposed	25	25	23	25	25	21	25	25	19	25	24	17	25	22	15	25	20	14	25	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	19	26	23	17	26	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	26	26	21	26	25	18	26	22	16	26	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	21	18	29	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	33	33	27	32	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	34	34	30	34	34	27	34	30	24	31	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	27	27	19	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	26	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	29	31	31	26	31	28	23	31	25	21	31	23	19	31	21	17	30	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	31	25	21	31	22	18	31	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	36	36	36	36	36	34	36	36	31	35	35	28	34	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
50	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	15	22	19	14	22	17	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	19	13	22	16	12	19	14	10	17	12	9	15	11	12
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	21	16	22	18	14	21	16	12	20	14	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	18	22	22	16	22	19	14	22	16	12	19	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	23	19	26	20	16	25	18	14	24	16	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	22	26	24	20	26	24	20	26	22	18	22	20	17	24	19	15	22	17	13	21	15	12
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	26	27	27	23	26	25	20	25	22	17	22	20	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	20	22	22	16	22	20	14	22	17	12	21	15	11	18	13	9	16	12	8
			Exposed	22	22	22	22	22	21	22	22	19	22	22	17	22	22	15	22	20	14	22	18	13	21	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	20	15	22	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	22	22	22	22	22	18	22	22	16	22	20	15	22	18	13	22	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	25	21	26	21	18	25	18	15	24	16	13	23	14	11	21	12	10	18	11	9
			Exposed	26	26	25	26	26	22	26	24	20	26	22	18	26	20	16	26	18	15	26	16	14	24	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	28	28	25	27	27	21	25	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	30	30	30	30	30	27	30	30	24	30	27	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	23	16	23	23	19	14	23	17	12	20	14	10	17	12	9	15	11	12	13	10	10		
			Exposed	23	23	19	23	23	17	23	22	16	23	20	14	23	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	24	24	24	24	24	24	24	24	21	24	24	19	24	23	17	24	21	16	24	19	14	23	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9
			Exposed	24	23	17	24	21	15	24	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	25	21	27	23	19	27	21	17	27	18	15	25	15	12	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	27	25	21	27	22	18	27	20	17	27	18	15	27	16	14	26	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	32	32	32	32	32	32	32	32	31	31	31	28	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	32	32	25	32	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

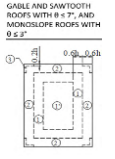
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

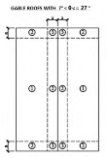
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

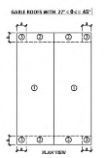
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

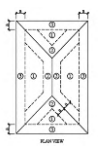












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	14	18	17	12			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	13	18	16	11	18	14	10	17	12	9	15	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	14	11			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	14	10	16	12	9	14	11	12	13	9	10
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	16	22	18	14	21	16	13			
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	20	17	23	17	14	23	15	12	22	13	11	20	11	9	17	10	8			
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	23	24	24	20	23	22	17	21	20	15			
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	11	18	13	9			
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	15	11	18	13	9	15	11	12	13	10	10	12	9	9	10	12	8			
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	12	18	15	11	17	13	9	15	11	8	13	9	9	11	8	14	10	11
			Exposed	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	17	12	18	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	18	22	18	15	21	16	13	21	14	11	20	12	10	18	11	9			
			Exposed	23	23	23	23	23	22	23	23	20	23	22	18	23	23	20	16	23	18	15	23	16	14	23	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	25	24	24	21	23	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	27	27	27	27	27	27	27	27	24	27	27	22	27	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	19	14	20	17	12	20	14	10	17	12	9	15	11	12	13	10	10
			Exposed	20	20	19	20	20	17	20	20	16	20	20	14	20	18	13	20	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	19	14	20	16	12	19	14	10	17	12	9	14	11	12	13	9	10	11	8	9			
			Exposed	20	20	17	20	20	15	20	19	14	20	17	12	20	15	11	19	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	18	15	23	15	12	22	13	11	20	11	9	17	10	8	15	9	11			
			Exposed	24	24	21	24	22	18	24	20	17	24	18	15	24	16	14	24	15	12	24	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	29	29	29	29	29	29	29	29	29	28	28	28	27	27	25	26	26	23	25	25	21	24	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	29	29	25	29	28	22	28	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
70	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	12			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	11	16	14	10	16	12	9	15	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	11			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	12	16	14	10	16	12	9	14	11	12
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	16	20	18	14	19	16	13			
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	17	14	20	15	12	20	13	11	20	11	9	17	10	8
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	22	20	21	21	17	20	20	15	
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	12			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	11	16	13	9	15	11	12	13	10	10	12	9	9	10	12	8			
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	16	16	16	16	13	16	15	11	16	13	9	15	11	8
			Exposed	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	16	11	16	15	11	16	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	18	15	19	16	13	19	14	11	18	12	10
			Exposed	20	20	20	20	20	20	20	20	20	18	20	20	16	20	18	15	20	16	14	20	14	11	20	12	10	18	10	8	15	9	11	13	12	10	12	11	9			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	20	21	21	17	20	20	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	14	10	17	12	9	15	11	12	13	10	10
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	16	12	18	14	11	12	18	13	9	14	11	12	13	9	10	11	8	9
			Exposed	18	18	17	18	18	15	18	18	14	18	17	12	18	15	11	18	14	10	17	13	9	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	21	18	15	21	15	12	20	13	11	19	11	9	17	10	8	15	9	11
			Exposed	22	22	21	22	22	18	22	20	17	22	18	15	22	16	14	22	15	12	22	14	11	20	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	26	26	26	26	26	26	26	26	26	25	25	25	25	25	25	24	24	23	23	23	21	22	22	18	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	26	26	25	26	26	22	26	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
80	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	12	9	14	11	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	13
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	19	19	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	17	21	19	15	18	16	13	16	14	11
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	21	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	15	11	12	13	10	10
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	7	
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	14	11	12	13	9	10	11	8	9
			Exposed	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	15	10	15	15	14	15	15	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	15	19	15	12	18	13	11	17	11	9	17	10	8	15	9	11
			Exposed	19	19	19	19	19	18	19	19	17	19	18	15	19	16	14	19	15	12	19	14	11	19	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	21	21	21	20	20	18	19	19	15	18	16	13	16	14	11	14	13	10	13	11	9
			Exposed	24	24	24	24	24	22	24	24	20	23	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

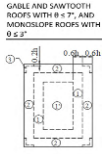
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

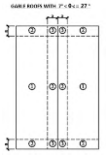
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

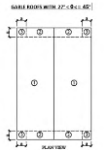
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

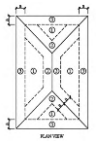












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	15	10	8
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	17	17	17	15
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	19	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	8	12	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	10	12	9	9	10	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	11	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10	15	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	11	15	12	10	15	10	8	15	9	11	13	12	10	12	11	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	18	18	18	17	17	16	16	16	14	16	15	12	15	13	11
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	10	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	9	14	11	12	13	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	9	10	11	8	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	12	17	13	11	16	11	9	15	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	15	17	16	14	17	15	12	17	14	11	17	12	9	17	10	8	15	8	11	13	11	9	11	10	8	10	9	11	9	7
		27-45	Interior	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	20	20	20	19	19	18	18	18	15	17	16	13	16	14	11	14	13	10	13	11	9
			Exposed	22	22	22	22	22	22	22	22	20	21	21	18	21	21	16	20	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	10
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	16	16	16	15
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	17	16	13	16	14	11	14	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	10	10	11	9	9	10	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	11	11	8	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	12	10	14	10	8	14	9	11	13	12	10	12	11	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	16	16	16	15	15	14	15	15	12	14	13	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	17	17	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	10	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10	11	8	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	10	12	12	9	12	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	11	15	11	9	14	9	11	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	12	9	15	10	8	15	8	11	13	11	9	11	10	8	10	8	11	9	7	
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19	19	18	18	18	17	17	15	16	16	13	15	14	11	14	13	10	13	11	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	19	19	16	19	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

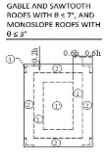
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

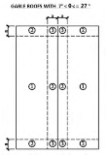
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

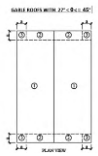
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

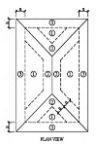












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

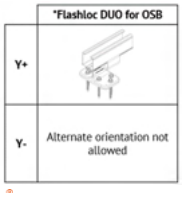
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	29	29	27	29	29	24	29	29	21	29	27	19	29	25	17	29	22	15	28	20	14	24	17	12	20	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	29	24	17	29	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	29	29	23	29	28	21	29	25	18	29	23	16	29	20	15	26	19	13	24	17	12	20	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	28	20	15	25	18	13	22	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	29	29	28	29	29	25	29	27	22	29	25	20	29	22	18	29	20	16	29	18	15	27	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	29	22	18	29	20	16	29	17	14	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	26	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	29	28	22	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	29	26	18	29	23	16	29	20	14	26	18	13	23	17	12	21	15	10	19	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	6	8	6	6
			Exposed	23	17	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	29	22	16	27	19	14	24	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	29	23	19	29	21	17	29	19	15	29	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	6	5	5	6	5	5
	D	0-7	Interior	29	21	15	27	19	13	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	19	14	9	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	25	18	13	22	16	12	20	14	10	18	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	29	19	16	29	17	14	27	15	13	24	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	7	5	4	5	4	3
		27-45	Interior	27	24	19	24	21	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	6	5	6	5	7	5	7	6	5	6	5	4	5	4	3
10	B	0-7	Interior	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	23	23	17	23	22	15	23	19	13	23	17	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	23	23	23	23	23	21	23	23	18	23	23	16	23	20	15	23	19	13	23	17	12	20	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	23	20	15	23	18	13	22	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	27	27	27	27	27	25	27	27	22	27	25	20	27	22	18	27	20	16	27	18	15	27	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	27	22	18	27	20	16	27	17	14	27	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	26	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	29	28	22	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	23	23	18	23	23	16	23	20	14	23	18	13	23	17	12	21	15	10	19	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	6	8	6	6
			Exposed	23	17	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	23	22	16	23	19	14	23	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	27	23	19	27	21	17	27	19	15	27	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	6	5	5	6	5	5
	D	0-7	Interior	23	21	15	23	19	13	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	19	14	9	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	23	18	13	22	16	12	20	14	10	18	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	27	19	16	27	17	14	27	15	13	24	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	7	5	4	5	4	3
		27-45	Interior	22	19	16	22	17	14	22	15	13	22	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	24	24	19	24	21	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	6	5	6	5	4	5	4	3
20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	17	17	17	17	17	15	17	17	13	17	17	12	17	16	11	17	14	10	17	13	9	15	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	17	17	15	17	17	13	17	16	12	17	14	11	17	13	10	16	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	15	13	21	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	21	21	18	21	20	16	21	17	14	21	16	13	21	14	12	21	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7	10	9	6
			Exposed	23	23	22	23	23	19	23	22	17	22	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	15	10	17	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	17	17	11	17	15	10	17	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	6	6	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	17	17	16	17	17	14	17	17	12	17	15	11	17	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	17	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	21	21	19	21	21	17	21	19	15	21	17	14	21	15	12	21	14	11	21	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	21	15	12	21	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	9	7	7	5	7	6	5	6	4
		27-45	Interior	23	23	23	23	23	20	23	23	18	23	21	16	21	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	6	5	5	6	5	5
	D	0-7	Interior	17	17	15	17	17	12	17	15	11	17	14	10	17	12	9	16	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5	6	5	5
			Exposed	17	14	9	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	17	17	13	17	16	12	17	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	22	19	16	22	17	14	22	15	13	22	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	24	24	19	24	21	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	6	5	6	5	4	5	4	3

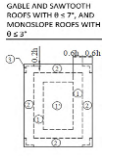
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

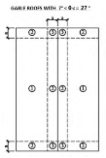
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

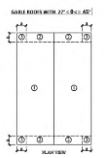
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

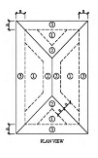












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

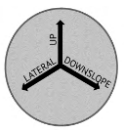
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

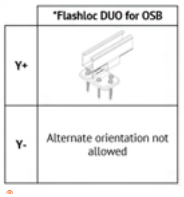
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	7	13	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	6	11	8	5	10	7	5	8	6	6	7	5	6
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	15	13	17	13	11	17	11	9	17	10	8	15	9	7	13	8	6
			Exposed	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	13	11	17	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	20	20	20	20	20	19	20	20	17	20	20	15	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	10	13	13	10	13	11	8	13	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	13	13	11	13	13	10	13	13	9	13	12	8	13	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	14	14	10	14	12	9	14	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	17	17	17	17	17	17	17	17	15	17	17	14	17	15	12	17	14	11	17	12	10	17	10	9	15	9	7	13	8	6	12	9	7	10	6	5	9	5	6
			Exposed	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	9	6	4	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	18	20	20	16	20	19	15	19	17	13	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	20	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	7	5	5	6	5	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	13	13	9	13	12	8	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	14	14	13	14	14	12	14	14	10	14	13	9	14	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	14	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	18	18	16	18	17	14	18	15	13	18	14	11	18	12	10	18	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	18	12	10	18	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	21	21	19	21	21	17	21	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	6
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4
40	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	9	7	12	8	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	6	7	5	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	10	8	12	9	7	11	8	6	10	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	11	9	15	10	8	14	9	7	13	8	6
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	13	11	15	12	10	15	10	8	15	8	7	13	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	16	16	13	15	14	11	14	12	10	12	11	8	11	10	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	10	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	12	12	11	12	12	10	12	12	9	12	12	8	12	11	7	12	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	15	15	15	15	15	15	15	15	15	14	15	13	15	14	12	15	13	11	15	12	10	15	10	9	14	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	4	3
		27-45	Interior	17	17	17	17	17	17	17	17	17	16	17	17	15	16	16	13	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5	6	5	5
			Exposed	15	15	11	15	14	11	13	13	10	13	12	9	11	11	8	10	10	7	9	9	7	8	8	6	8	8	6	8	7	5	7	6	5	6	5	5	6	5	4
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	13	13	9	13	12	8	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	13	11	8	13	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	15	15	15	15	15	15	15	15	15	14	15	12	15	14	11	15	12	10	14	12	9	12	10	7	12	9	7	11	8	6	10	7	5	9	6	5	8	5	6
			Exposed	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	18	18	18	18	18	17	18	18	15	17	17	14	17	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	6
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4
50	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	9	6	10	7	5	9	6	6	7	5	6	7	5	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	6	10	7	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	10	13	12	10	13	10	8	13	8	7	13	7	6	11	6	5	10	6	5
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	11	13	12	10	12	11	8	11	10	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5	7	6	5
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	6	6
			Exposed	11	11	11	11	11	10	11	11	9	11	11	8	11	11	7	11	10	7	11	9	6	10	7	5	9	6	6	7	5	5	6	5	5	6	6	4	5	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	8	6	7	7	5	6	7	5	5
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6	11	8	6	10	7	5	9	6	7	6	7	5	6	6	4	5	5	4	6	5	3	5	4	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	11	13	12	10	13	12	9	12	9	7	12	8	6	11	7	5	10	6	5	9	5	6
			Exposed	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	4	3
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	12	13	13	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	11	11	12	12	10	12	12	9	12	11	8	12	9	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	8	12	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	7	4	5	6	4
			Exposed	12	11	8	12	10	7	12	9	7	11	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	11	9	14	10	8	13	9	7	12	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	14	12	10	14	11	9	14	10	8	14	9	7	14	8	7	13	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	16	16	16	16	16	16	16	16	15	15	15	14	15	15	12	14	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	6
			Exposed	16	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4

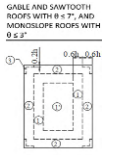
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

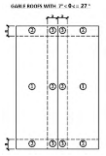
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

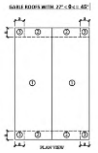
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

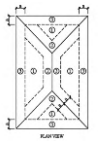












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

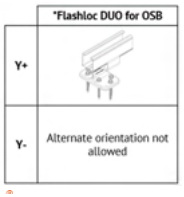
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	7	9	8	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	6	9	8	5	9	7	5	8	6	6	7	5	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	6	7	5	6	6	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	9	7	10	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	8	7	11	7	6	11	6	5	10	5	7	8	5	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	10	11	11	8	11	10	7			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	7	9	9	6	9	7	5	9	6	7	7	5	6	6	5	5	6	6	6	5	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	7	7	5	6	7	5	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	6	9	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	10	9	6	10	8	6	9	7	5
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	10	11	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	13	13	13	13	13	13	13	13	11	13	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5			
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	6	10	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	5
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	7	10	8	6	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	10	10	8	10	10	7	10	9	7	10	8	6	10	7	5	9	7	5	8	6	7	7	5	6	6	7	5	6	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	11	7	6	11	6	5	10	5	7	8	5	6	7	7	5
			Exposed	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	6	12	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	12	13	13	11	13	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	14	14	12	14	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	7	5	5	6	5	6	5			
70	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	8	7	10	7	6	10	6	5	10	5	7	8	5	6
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	8	11	10	7			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	7	5	8	6	7	7	5	6	6	5	5	6	6	4	5	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	8	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	7	9	8	6	9	7	5	8	6	5
			Exposed	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4		
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	10	10	10	8	10	10	7			
			Exposed	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6			
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	5	8	6	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	8	8	6	8	7	5	8	6	6	7	5	6	7	5	5
			Exposed	9	9	8	9	9	7	9	9	7	9	8	6	9	7	5	9	7	5	8	6	7	7	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	10	9	7	10	8	6	9	8	6	9	7	5	8	6	5
			Exposed	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	8	6	11	7	5	10	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	11	11	10	11	11	9	10	9	7	9	8	6	8	8	6	8	7	5	7	6	5
			Exposed	13	13	12	13	13	11	13	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	7	5	5	6	5	6	5			
80	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	7	6	5	6	5	6
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	7	6	5	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	6	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	6	8	7	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	7	6	5
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	8	9	9	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	6	6	5	7	6	4	6	5	4	6	4	4			
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	7	7	7	7	7	5	7	6	5	6	6	4	5	5	4	6	5	4	6	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	6	8	8	6	8	7	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	6	5	6	5	4	6	5	4
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	9	9	9	9	9	8	9	9	7	8	7	6	7	6	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5	6	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	6	5	5			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	4	5	5	4	6	5	4	6	4	3	5	4	3
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	6	7	5	5	6	4
			Exposed	8	8	8	8	8	7	8	8	8	6	8	7	5	8	7	5	8	7	6	7	5	6	6	4	7	5	4	6	4	3	5	4	3	5	4	3			
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	6	5	8	6	5	7	5	4	6	5	4	5	4	3			
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	6	9	7	5	9	6	7	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	9	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	12	12	12	12	12	11	12	12	10	11	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	5	6	5	6	5			

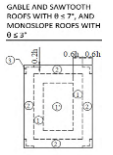
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

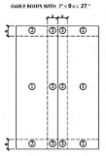
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

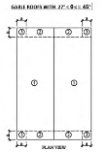
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

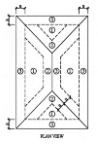












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

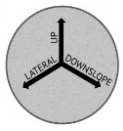
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	6	6	5	6
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	6	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	5	7	8	5	6
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	9	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	7	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	7	6	5	6	5	4
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	7	5	8	6	5	8	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	8	7	6	7	6	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	6	6	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	5	6	6	7	5	5	6	4	5	5	4	6	5	3	3
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	7	7	5	6	6	6	7	5	6	4	7	5	4	6	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	7	8	8	7	8	8	6	8	5	6	7	6	5	6	4	4	5	4	3	5	4	3
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	7	8	8	6	8	7	5	7	6	5	6	5	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4
100	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	6	5	6
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	6	5	5	6	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	7	5	7	5	7	7	5	6
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	8	6	8	7	5	7	6	5
	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5	5	6	4	5	6	4
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	5	6	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	7	5	5	6	4	5	5	3
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	5	6	7	5	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	6	7	7	6	7	7	5	7	6	5	7	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	7	8	7	6	7	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	7	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	7	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	7	8	8	7	8	8	6	8	5	6	7	6	5	6	4	4	5	4	3	5	4	3
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	8	7	7	5	7	6	5	6	5	6	6	5	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	7	5	7	6	5	6	5	4

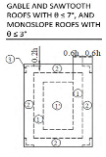
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

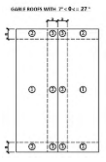
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

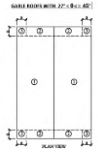
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

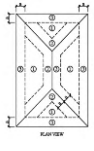












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

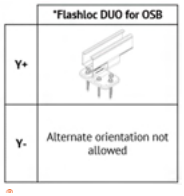
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	53	56	56	47	56	56	42	56	54	37	56	49	34	56	44	31	56	40	28	47	34	23	40	29	20	34	25	17	30	21	15	26	19	13	23	17	12
			Exposed	56	48	34	56	43	30	54	38	27	48	34	24	43	31	22	39	28	20	36	26	18	30	22	15	26	18	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	56	56	46	56	56	41	56	50	36	56	45	33	56	40	30	51	37	27	47	33	25	39	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	56	40	29	50	36	26	44	32	23	40	29	21	36	26	19	33	24	17	30	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	57	57	56	57	57	50	57	54	44	57	49	40	57	44	36	57	40	33	57	36	30	53	30	25	45	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	57	44	36	57	39	32	57	35	28	55	31	26	49	28	23	45	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	57	57	57	57	57	57	57	57	53	57	57	48	57	55	43	56	50	39	51	45	36	43	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	57	55	43	54	49	38	49	43	34	44	39	31	40	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	56	51	36	56	45	32	56	41	28	51	36	25	46	33	23	42	30	21	38	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	46	33	23	41	29	20	36	26	18	33	23	16	29	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	56	43	31	53	38	28	47	34	25	42	31	22	38	28	20	35	25	18	32	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	38	27	20	34	24	18	30	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	57	46	38	57	41	34	57	37	30	57	33	27	52	30	25	47	27	22	43	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	52	30	24	46	26	22	41	24	20	37	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	57	57	45	57	51	40	52	46	36	46	41	33	42	37	29	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	56	42	29	52	37	26	47	34	23	42	30	21	38	27	19	34	25	17	31	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	38	27	19	33	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	49	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	31	23	17	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	57	38	31	57	34	28	53	30	25	48	27	22	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	43	25	20	38	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	54	48	38	48	43	33	43	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
10	B	0-7	Interior	45	45	45	45	45	45	45	45	42	45	45	37	45	45	34	45	44	31	45	40	28	45	34	23	40	29	20	34	25	17	30	21	15	26	19	13	23	17	12
			Exposed	45	45	34	45	43	30	45	38	27	45	34	24	43	31	22	39	28	20	36	26	18	30	22	15	26	18	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	45	45	45	45	45	41	45	45	36	45	45	33	45	40	30	45	37	27	45	33	25	39	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	45	40	29	45	36	26	44	32	23	40	29	21	36	26	19	33	24	17	30	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	52	52	52	52	52	50	52	52	44	52	49	40	52	44	36	52	40	33	52	36	30	52	30	25	45	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	52	44	36	52	39	32	52	35	28	52	31	26	49	28	23	45	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	56	56	56	56	56	56	56	56	53	56	56	48	56	55	43	56	50	39	51	45	36	43	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	56	55	43	54	49	38	49	43	34	44	39	31	40	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	45	45	36	45	45	32	45	41	28	45	36	25	45	33	23	42	30	21	38	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	45	33	23	41	29	20	36	26	18	33	23	16	29	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	45	43	31	45	38	28	45	34	25	42	31	22	38	28	20	35	25	18	32	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	38	27	20	34	24	18	30	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	52	46	38	52	41	34	52	37	30	52	33	27	52	30	25	47	27	22	43	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	52	30	24	46	26	22	41	24	20	37	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	56	56	45	56	51	40	52	46	36	46	41	33	42	37	29	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	45	42	29	45	37	26	45	34	23	42	30	21	38	27	19	34	25	17	31	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	38	27	19	33	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	45	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	31	23	17	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	53	38	31	53	34	28	53	30	25	48	27	22	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	43	25	20	38	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	54	48	38	48	43	33	43	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
20	B	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	33	23	33	29	20	33	25	17	30	21	15	26	19	13	23	17	12
			Exposed	33	33	33	33	33	30	33	33	27	33	33	24	33	31	22	33	28	20	33	26	18	30	22	15	26	18	13	22	16	12	19	14	10	17	12	9	15	11	12
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	33	25	34	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	34	34	29	34	34	26	34	32	23	34	29	21	34	26	19	33	24	17	30	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	40	41	41	36	41	40	33	41	36	30	41	30	25	41	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	41	41	36	41	39	32	41	35	28	41	31	26	41	28	23	41	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	45	36	43	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	46	46	43	46	46	38	46	43	34	44	39	31	40	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	33	33	33	33	33	32	33	33	28	33	33	25	33	33	23	33	30	21	33	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	33	33	23	33	29	20	33	26	18	33	23	16	29	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	34	34	31	34	34	28	34	34	25	34	31	22	34	28	20	34	25	18	32	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	34	27	20	34	24	18	30	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	41	41	38	41	41	34	41	37	30	41	33	27	41	30	25	41	27	22	41	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	41	30	24	41	26	22	41	24	20	37	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	46	46	45	46	46	40	46	46	36	46	41	33	42	37	29	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	33	33	29	33	33	23	33	33	30	21	33	27	19	33	25	17	31	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10	11	8
			Exposed	33	27	19	33	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	34	34	26	34	31	23	34	28	21	34	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	31	23	17	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	43	38	31	43	34	28	43	30	25	43	27	22	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	43	25	20	38	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	47	47	38	47	43	33	43	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

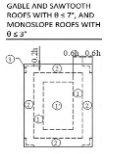
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

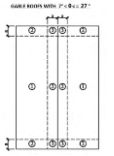
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

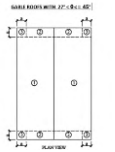
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

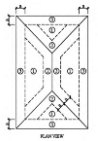












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

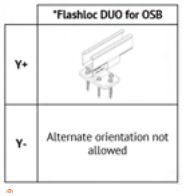
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	27	20	27	25	17	27	21	15	26	19	13	23	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	26	18	27	22	15	26	18	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	24	18	27	21	15	25	18	13	22	16	12	19	14	10
			Exposed	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	24	17	27	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	30	25	34	26	21	34	22	18	34	20	16	30	17	14	26	15	13
			Exposed	34	34	34	34	34	32	34	34	28	34	31	26	34	28	23	34	26	21	34	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	30	36	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	38	38	38	38	38	38	38	38	34	38	38	31	38	35	28	36	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	27	19	27	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	27	27	23	27	27	20	27	26	18	27	23	16	27	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	25	18	27	23	17	27	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	27	27	20	27	24	18	27	22	16	27	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	34	34	34	34	34	34	34	34	30	34	33	27	34	30	25	34	27	22	34	25	20	34	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	34	30	24	34	26	22	34	24	20	34	21	18	33	19	16	30	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	8
		27-45	Interior	38	38	38	38	38	38	38	38	36	38	38	33	38	37	29	37	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	38	37	29	37	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	27	27	27	27	27	26	27	27	23	27	27	21	27	27	19	27	25	17	27	23	16	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	27	27	19	27	24	17	27	22	15	27	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	27	27	26	27	27	23	27	27	21	27	25	19	27	23	17	27	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	27	23	17	27	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	36	36	31	36	34	28	36	30	25	36	27	22	36	25	20	36	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	36	25	20	36	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	40	40	38	40	40	33	40	38	30	38	34	27	35	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	17	25	21	15	25	19	13	23	17	12			
			Exposed	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	25	18	25	22	15	25	18	13	22	16	11	19	14	10	17	12	9	15	11	12		
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	24	18	25	21	15	25	18	13	22	16	12	19	14	10
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	22	16	25	18	13	21	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	26	21	29	22	18	29	20	16	28	17	14	26	15	13
			Exposed	29	29	29	29	29	29	29	29	28	29	29	26	29	28	23	29	26	21	29	23	19	29	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	32	32	26	30	28	22	27	25	19	24	22	17	21	19	15
			Exposed	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	32	25	33	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	16	25	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	25	25	23	25	25	20	25	25	18	25	23	16	25	21	15	25	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	18	25	23	17	25	19	14	23	16	12	20	14	10	17	12	9	15	11	12	13	10	11
			Exposed	25	25	20	25	24	18	25	22	16	25	20	15	25	18	13	22	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	27	22	29	25	20	29	21	17	28	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	29	29	24	29	26	22	29	24	20	29	21	18	29	19	16	29	18	14	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	32	32	27	31	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	33	33	29	33	33	26	33	30	23	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	21	26	26	19	26	25	17	26	23	16	26	19	13	22	17	12	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	26	26	19	26	24	17	26	22	15	26	19	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	27	27	26	27	27	23	27	27	21	27	25	19	27	23	17	27	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	27	23	17	27	20	15	25	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	28	31	30	25	31	27	22	31	25	20	31	23	19	31	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	31	25	20	31	22	18	31	20	16	31	18	15	28	16	13	25	17	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	35	35	35	35	35	33	35	35	30	34	34	27	33	31	24	32	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
50	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	19	13	21	17	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	15	21	18	13	21	18	13	21	16	12	19	14	10	17	12	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	18	13	21	16	12	19	14	10
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	18	13	21	16	11	18	13	10	16	12	9	14	10	12	12	9	10	13	9	10
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	22	18	25	20	16	24	17	14	23	15	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	20	25	25	19	25	25	16	25	17	14	25	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	26	27	27	22	25	25	19	24	22	17	21	19	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	28	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	20	14	21	17	12	20	15	10	18	13	9	16	11	12
			Exposed	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	14	21	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	19	14	21	16	12	20	14	10	17	12	9	15	11	12	13	10	11			
			Exposed	21	21	20	21	21	18	21	21	16	21	20	15	21	18	13	21	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	21	17	25	18	15	24	15	13	23	13	11	20	12	10	18	10	9
			Exposed	25	25	24	25	25	22	25	24	20	25	21	18	25	19	16	25	18	14	25	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	28	28	25	26	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	29	29	29	29	29	26	29	29	23	29	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	23	16	23	19	13	22	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	23	23	19	23	23	17	23	22	15	23	19	14	23	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	23	23	17	23	20	15	23	18	13	23	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	22	27	25	20	27	23	19	27	21	17	26	17	14	25	15	12	22	13	11	19	11	9	17	10	12	15	9	11
			Exposed	27	25	20	27	22	18	27	20	16	27	18	15	27	16	13	25	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	31	31	31	31	31	31	31	30	30	30	30	27	29	29	24	28	28	22	27	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	31	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

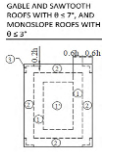
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

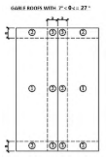
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

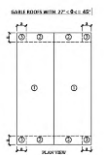
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

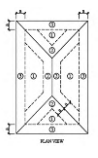












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	12			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	17	12	9	15	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	12	18	14	10			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	13	18	16	11	18	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	16	22	20	16	22	17	14	21	15	13
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	20	16	22	17	14	22	15	12	22	13	10	19	11	9	17	10	12
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	22	17	21	19	15
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	25	20	24	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	10	18	13	9	16	11	12
			Exposed	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	14	18	18	12	18	15	10	18	13	9	15	11	12	13	10	10	12	13	9	10	11	8			
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	10	11
			Exposed	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	16	12	18	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	17	22	18	15	21	15	13	20	13	11	19	12	10	18	10	9
			Exposed	22	22	22	22	22	22	22	22	20	22	21	18	22	22	19	22	18	14	22	16	13	22	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	26	26	26	26	26	26	26	26	23	26	26	21	26	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
			Exposed	26	26	26	26	26	26	26	26	23	26	26	21	26	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	19	13	20	16	11	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	20	20	19	20	20	17	20	20	15	20	19	14	20	18	12	20	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	15	20	19	14	20	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	12	9
			Exposed	20	20	17	20	20	15	20	18	13	20	16	12	20	15	11	19	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	19	24	21	17	23	17	14	22	15	12	21	13	11	19	11	9	17	10	12	15	9	11
			Exposed	24	24	20	24	22	18	24	20	16	24	18	15	24	16	13	24	15	12	23	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	28	28	28	28	28	28	28	28	28	27	27	27	26	26	24	26	26	22	25	25	20	23	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	28	28	24	28	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
70	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	11	15	12	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	14	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	12	16	16	12	13	9	10
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	19	13	10	19	11	9	17	10	12
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	19	20	20	17	19	19	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	23	21	17	20	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	10	15	13	9	15	11	12
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	12	13	10	10	12	13	9	10	11	8			
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	14	10	16	12	9	15	11	12	13	10	11
			Exposed	16	16	16	16	16	16	16	16	16	15	16	16	16	16	16	16	16	16	15	16	13	16	16	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	15	19	15	13	18	13	11	18	12	10	17	10	9
			Exposed	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	14	19	16	13	19	14	11	19	12	10	17	10	8	15	9	11	13	12	10	12	10	9			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	21	21	21	20	20	18	19	19	15	18	17	13	17	15	12	15	13	10	
			Exposed	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	23	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	16	11	17	14	10	17	12	9	15	11	12	13	9	10
			Exposed	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	15	10	17	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	12	17	14	10	16	12	9	14	10	12	12	9	9
			Exposed	17	17	17	17	17	15	17	17	13	17	16	12	17	15	11	17	13	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	19	21	21	17	21	17	14	20	15	12	19	13	11	18	11	9	17	10	12	15	9	11			
			Exposed	21	21	20	21	21	18	21	20	16	21	18	15	21	16	13	21	15	12	21	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	23	23	22	23	23	20	21	21	17	20	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	25	25	24	25	25	22	25	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
80	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	13	10
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	19	19	19	19	19	17	18	18	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	17	20	18	14	18	16	13	16	14	11
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12	13	10	10	12	13	9	10	11	8
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	12	9	14	11	12	13	9	10	11	12	8	9	10	7
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	13	17	13	11	16	12	10	16	10	9
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	13	17	17	11	17	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	19	19	19	18	18	15	17	17	13	16	15	12	15	13	10
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	9	15	11	12	13	9	10
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	15	10	15	15	10	15	12	9	15	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	14	10	12	12	9	9
			Exposed	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	18	15	12	18	13	11	17	11	9	16	10	12	15	9	11
			Exposed	19	19	19	19	19	18	19	19	16	19	18	15	19	16	13	19	15	12	19	13	11	19	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	20	20	17	19	14	17	13	10	16	14	11	14	12	10	12	10	12	11	9	
			Exposed	23	23	23	23	23	22	23	23	20	23	22	18	22	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

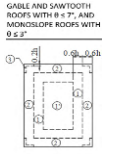
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

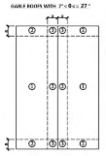
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

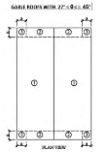
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

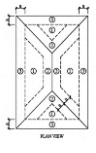












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

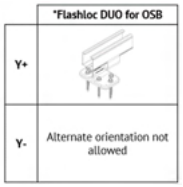
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	10	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	10	15	11	9	15	10	12
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	17	17	17	17	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	10	10	12	13	9	10	11	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	12	10	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	10	14	10	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	12	10	15	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	17	15	16	16	13	15	15	12	15	13	10	10
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	18	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	11	12	13	9	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	11	13	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	13	10	12	12	9	10	11	12	9
			Exposed	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	15	12	16	13	11	16	11	9	15	10	12	15	9	11
			Exposed	17	17	17	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	11	17	11	9	17	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	19	19	19	17	18	18	15	17	16	13	16	14	11	14	12	10	12	11	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	20	20	16	20	18	15	19	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	10	11	9	10
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	14	11	9	14	10	12
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	13	16	14	11	14	12	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12	11	10	10	11	13	9	10	11	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	11	11	11	10	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	10	11	12	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	12	10	12	10	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	10	8	14	9	11	13	12	10	12	10	9
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	16	15	15	15	13	14	14	12	14	13	10
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	9	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	11	12	9	10	11	12	8	10	11	7	13	9	7
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	10	12	12	9	10	11	12	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	10	12	12	9	10	11	12	9	9	10	7	12	9	7	11	8	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	14	10	12	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	11	9	15	10	12	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	15	16	16	13	15	14	11	14	12	10	12	11	9
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	18	17	13	16	14	11	14	12	10	12	10	13	10	9	11	9	12	10	12	11	9

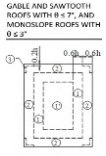
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

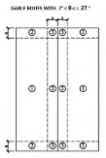
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

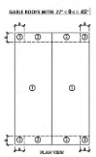
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

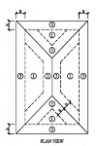












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

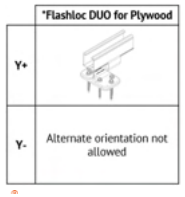
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	39	47	47	35	47	46	31	47	40	28	47	36	25	47	33	23	42	30	21	35	25	18	30	21	15	26	18	13	22	16	11	19	14	10	17	12	9
			Exposed	47	36	25	46	32	22	40	29	20	36	26	18	32	23	16	29	21	15	27	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	47	47	34	47	42	30	47	37	27	47	34	24	42	30	22	38	27	20	35	25	18	29	21	15	25	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	42	30	22	37	27	20	33	24	18	30	21	16	27	19	14	24	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	48	48	42	48	48	37	48	40	33	48	36	30	48	33	27	48	30	24	48	27	22	40	23	19	34	19	16	29	17	14	25	15	12	22	13	10	20	11	9
			Exposed	48	33	27	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	48	48	48	48	48	46	48	48	40	48	47	36	48	41	32	42	37	29	38	34	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	48	41	32	41	36	28	36	32	26	33	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	47	38	27	47	34	24	43	30	21	38	27	19	34	25	17	31	22	16	28	20	14	24	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	34	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	46	32	23	40	28	21	35	25	19	32	23	17	29	21	15	26	19	14	24	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	48	35	28	48	31	25	48	27	22	44	25	20	39	22	18	35	20	17	32	18	15	27	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	39	22	18	34	20	16	31	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	48	44	34	44	38	30	39	34	27	35	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	45	32	22	39	28	20	35	25	17	31	22	16	28	20	14	26	18	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	28	20	14	25	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	37	26	19	33	23	17	29	21	15	26	19	14	24	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	8	6	4	6	7	4
		20-27	Interior	48	29	23	46	25	21	40	23	19	36	20	17	32	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	36	28	36	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	7	8	7	6	7	6	5	7	9	8	6
10	B	0-7	Interior	38	38	38	38	38	35	38	38	31	38	38	28	38	36	25	38	33	23	38	30	21	35	25	18	30	21	15	26	18	13	22	16	11	19	14	10	17	12	9
			Exposed	38	36	25	38	32	22	38	29	20	36	26	18	32	23	16	29	21	15	27	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	38	38	34	38	38	30	38	37	27	38	34	24	38	30	22	38	27	20	35	25	18	29	21	15	25	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	38	30	22	37	27	20	33	24	18	30	21	16	27	19	14	24	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	44	44	42	44	44	37	44	40	33	44	36	30	44	33	27	44	30	24	44	27	22	40	23	19	34	19	16	29	17	14	25	15	12	22	13	10	20	11	9
			Exposed	44	33	27	44	29	24	44	26	21	41	23	19	37	21	17	33	19	16	30	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	47	47	47	47	47	46	47	47	40	47	47	36	47	41	32	42	37	29	38	34	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	47	41	32	41	36	28	36	32	26	33	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	38	38	27	38	34	24	38	30	21	38	27	19	34	25	17	31	22	16	28	20	14	24	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	34	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	38	32	23	38	28	21	35	25	19	32	23	17	29	21	15	26	19	14	24	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	44	35	28	44	31	25	44	27	22	44	25	20	39	22	18	35	20	17	32	18	15	27	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	39	22	18	34	20	16	31	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	47	44	34	44	38	30	39	34	27	35	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	38	32	22	38	28	20	35	25	17	31	22	16	28	20	14	26	18	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	28	20	14	25	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	37	26	19	33	23	17	29	21	15	26	19	14	24	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	8	6	4	6	7	4
		20-27	Interior	48	29	23	46	25	21	40	23	19	36	20	17	32	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	36	28	36	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
20	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	25	18	28	21	15	26	18	13	22	16	11	19	14	10	17	12	9
			Exposed	28	28	25	28	28	22	28	28	20	28	26	18	28	23	16	28	21	15	27	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	27	20	28	25	18	28	21	15	25	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	28	28	22	28	27	20	28	24	18	28	21	16	27	19	14	24	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	34	34	34	34	34	34	34	34	33	34	34	30	34	33	27	34	30	24	34	27	22	34	23	19	34	19	16	29	17	14	25	15	12	22	13	10	20	11	9
			Exposed	34	33	27	34	29	24	34	26	21	34	23	19	34	21	17	33	19	16	30	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	36	38	38	32	38	37	29	38	34	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	38	38	32	38	36	26	33	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7			
	C	0-7	Interior	28	28	27	28	28	24	28	28	21	28	27	19	28	25	17	28	22	16	28	20	14	24	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	28	24	17	28	22	15	27	19	14	24	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	28	28	23	28	28	21	28	25	19	28	23	17	28	21	15	26	19	14	24	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	34	34	28	34	31	25	34	27	22	34	25	20	34	22	18	34	20	17	32	18	15	27	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	34	22	18	34	20	16	31	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	38	38	34	38	38	30	38	34	27	35	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	28	28	22	28	28	20	28	25	17	28	22	16	28	20	14	26	18	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	28	20	14	25	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	28	26	19	28	23	17	28	21	15	26	19	14	24	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	8	6	4	6	7	4
		20-27	Interior	36	29	23	36	25	21	36	23	19	36	20	17	32	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	36	28	36	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6

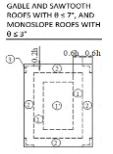
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

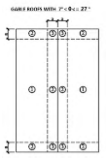
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

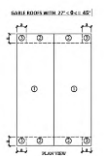
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

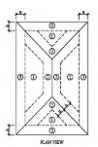












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

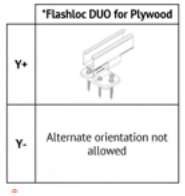
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	21	22	22	18	22	21	15	22	18	13	22	16	11	19	14	10	17	12	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	23	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	23	23	22	23	23	20	23	23	18	23	21	16	23	19	14	23	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	27	22	28	23	19	28	19	16	28	17	14	25	15	12	22	13	10	20	11	9
			Exposed	28	28	27	28	28	24	28	26	21	28	23	19	28	21	17	28	19	16	28	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	29	32	32	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	32	32	32	32	32	28	32	32	26	32	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	20	14	22	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	22	22	17	22	22	15	22	19	14	22	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	23	20	15	23	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	8	6	6	7	7	5
		20-27	Interior	28	28	28	28	28	26	28	28	25	28	28	22	28	28	18	28	28	20	28	28	17	28	18	15	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	28	22	18	28	20	16	28	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	6	10	6	6	9	5	4
		27-45	Interior	32	32	32	32	32	30	32	32	27	32	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	D	0-7	Interior	22	22	22	22	22	20	22	22	17	22	22	16	22	20	14	22	18	13	22	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	6	9	7	5
			Exposed	22	20	14	22	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	30	29	23	30	25	21	30	23	19	30	20	17	30	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	30	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	34	34	28	34	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
40	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	18	13	21	16	11	19	14	10	17	12	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	13	21	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	15	21	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	21	21	21	21	21	21	21	21	18	21	21	16	21	19	14	21	18	13	21	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	23	19	24	19	16	24	17	14	24	15	12	22	13	10	20	11	9
			Exposed	24	24	24	24	24	24	24	24	21	24	23	19	24	21	17	24	19	16	24	17	14	24	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	28	28	28	28	28	28	28	28	26	28	28	23	28	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	21	21	17	21	21	15	21	19	14	21	18	12	21	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	19	14	21	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	21	20	15	21	18	13	21	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	24	24	24	24	24	24	24	24	22	24	24	20	24	22	18	24	20	17	24	18	15	24	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	24	22	18	24	20	16	24	18	15	24	16	13	24	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	8	11	10	8
			Exposed	28	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	22	22	22	17	22	22	16	22	20	14	22	18	13	22	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	6	9	7	5
			Exposed	22	20	14	22	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	22	22	19	22	22	17	22	21	15	22	19	14	22	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	22	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	26	26	23	26	25	21	26	23	19	26	20	17	26	18	15	24	17	14	22	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	26	18	15	26	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	30	30	28	30	30	25	30	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
50	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	17	12	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	18	11	18	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	15	11	18	13	10	16	12	9	14	10	8
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	14	18	18	13	18	16	12	18	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	19	16	21	17	14	21	15	12	20	13	10	20	11	9
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	17	14	21	15	12	19	11	8	16	9	8	14	8	7	13	7	6	13	7	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	24	24	19	22	21	17	20	18	14	18	16	13	16	14	11
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	17	12	18	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	18	18	17	18	18	15	18	18	14	18	18	12	18	16	11	18	14	10	18	13	9	15	11	8	13	9	6	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	13	18	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	18	18	15	18	18	12	18	16	12	18	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	20	17	21	18	15	21	16	13	21	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	21	21	18	21	20	16	21	18	15	21	16	13	21	14	12	21	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	24	24	20	23	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	25	25	22	25	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	14	19	18	13	19	17	12	19	14	10	17	12	8	14	10	7	13	9	6	11	8	6	9	7	5
			Exposed	19	19	14	19	18	13	19	16	11	19	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	19	19	19	19	19	19	19	19	15	19	19	14	19	17	13	19	15	11	19	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	19	17	12	19	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	22	22	22	22	22	21	22	22	19	22	20	17	22	18	15	22	17	14	22	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	22	18	15	22	16	13	22	15	12	22	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	26	26	26	26	26	26	25	25	25	25	25	20	25	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6

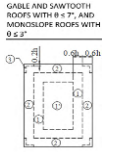
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

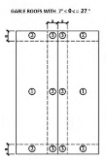
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

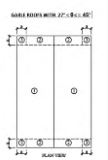
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

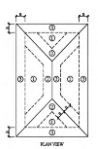












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

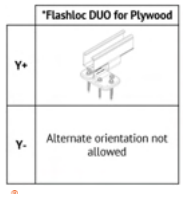
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	14	10	15	12	9			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	13	15	15	11	15	13	10	15	12	9	14	10	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	18	13	10	17	11	9			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	17	14	19	15	12	19	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	19	20	20	17	19	18	14	18	16	13	16	14	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	8	13	10	7	12	8	6
			Exposed	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	12	9	15	11	8	13	9	7	11	8	9	11	8	6
			Exposed	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	18	13	10	17	11	8	15	10	6
			Exposed	19	19	18	19	19	16	19	18	15	19	16	13	19	14	12	19	13	11	19	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	20	21	21	18	20	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	22	22	22	22	22	20	22	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	17	17	12	17	15	11	17	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	7	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	18	15	20	17	14	20	15	13	19	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	20	18	15	20	16	13	20	15	12	20	13	11	20	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	22	22	18	22	21	17	21	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	23	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
70	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	8	13	10	7	13	9	6	11	8	9
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	10	16	11	9
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	10	16	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	17	18	18	14	17	16	13	16	14	11
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	8	13	10	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	11	13	13	9	13	11	8	13	11	9	12	9	7
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	13	10	16	11	9
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	14	12	16	13	11	16	12	10	16	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	19	19	19	19	19	18	19	19	19	18	18	15	18	18	14	17	16	13	16	14	11
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	8	14	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	14	14	12	14	14	11	14	14	10	14	12	9	14	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	15	13	17	13	11	17	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	18	18	15	18	16	13	18	15	12	18	13	11	18	12	10	18	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	20	20	20	18	20	20	17	19	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	21	21	18	21	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
80	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	14	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	13	10	14	11	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	14	16	16	13	15	14	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	17	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	9	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	14	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	13	10	14	11	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	14	18	18	14	18	16	13
			Exposed	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	8	12	10	7	12	9	6	11	8	9	10	7	8
			Exposed	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	11	8	12	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	10	7	12	9	6	11	8	9	9	7	8
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	15	13	16	13	10	15	9	8	14	8	7	13	7	6	11	6	8	10	8	6
			Exposed	16	16	15	16	16	13	16	15	12	16	13	11	16	12	10	16	11	9	16	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	18	18	15	17	16	13	16	14	10	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	19	19	18	19	19	16	19	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6

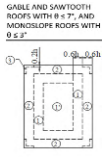
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

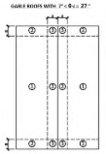
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

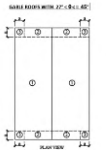
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

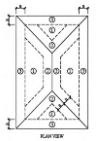












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

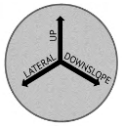
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

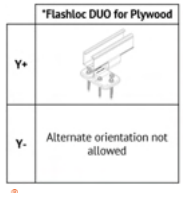
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	9
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	9	9	7	8
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	13	9	8	13	8	7	13	7	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	14	13	14	14	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	10	8	10	9	7	10	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	8	13	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	11	13	13	10	12	11	9	11	10	8
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	11	8	9	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	7	11	9	6	11	8	9	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	11	9	14	9	8	13	8	7	13	7	6	11	6	8
			Exposed	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10	14	11	9	14	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	15	15	15	13	15	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
100	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	8	9	9	7	8
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	8	11	8	7	11	7	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	9	6	7	8	8	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	8	6	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	9	7	11	8	6			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	11	12	12	10	12	11	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	9	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	6	10	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	6	10	8	9	9	7	8	8	7	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	12	8	7	12	7	6	11	6	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6

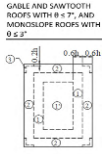
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

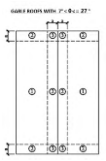
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

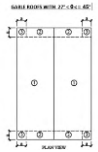
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

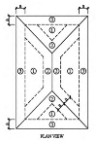












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

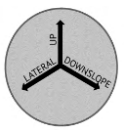
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

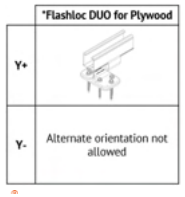
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	78	78	69	78	78	59	78	78	52	78	73	47	78	61	43	78	55	39	78	50	35	59	42	30	50	36	25	43	31	22	37	27	19	30	23	17	29	21	15
			Exposed	78	61	42	78	54	38	72	48	34	61	43	30	55	39	27	49	36	25	45	32	23	38	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	78	78	58	78	78	51	78	63	46	78	57	41	78	51	37	64	46	34	59	42	31	49	35	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	78	51	37	63	45	33	56	40	30	50	36	27	45	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	80	80	80	80	80	62	80	80	56	80	61	50	80	55	45	80	50	41	80	46	38	74	38	32	57	33	27	49	28	23	43	25	20	37	22	18	33	19	16
			Exposed	80	55	45	80	49	40	80	44	36	80	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	81	81	81	81	81	81	81	81	76	81	81	60	81	81	54	81	63	49	64	57	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	81	81	54	81	61	48	61	55	43	55	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	78	65	45	78	57	40	78	51	36	64	46	32	58	42	29	52	38	26	48	34	24	40	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	58	41	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	78	54	39	78	48	35	59	43	31	53	38	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	48	35	25	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	80	58	48	80	52	42	80	46	38	80	42	34	67	38	31	60	34	28	54	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	66	37	31	58	33	27	52	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	81	81	57	81	65	51	65	58	46	58	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	78	53	37	68	47	33	59	42	30	53	38	27	48	34	24	43	31	22	39	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	48	34	24	42	30	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	62	44	33	55	40	29	49	35	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	40	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	80	48	39	80	43	35	73	38	32	60	35	28	54	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	81	60	47	60	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
10	B	0-7	Interior	64	64	64	64	64	59	64	64	52	64	64	47	64	61	43	64	55	39	64	50	35	59	42	30	50	36	25	43	31	22	37	27	19	33	24	17	29	21	15
			Exposed	64	61	42	64	54	38	64	48	34	61	43	30	55	39	27	49	36	25	45	32	23	38	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	64	64	58	64	64	51	64	63	46	64	57	41	64	51	37	64	46	34	59	42	31	49	35	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	64	51	37	63	45	33	56	40	30	50	36	27	45	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	62	73	73	56	73	61	50	73	55	45	73	50	41	73	46	38	73	38	32	57	33	27	49	28	23	43	25	20	37	22	18	33	19	16
			Exposed	73	55	45	73	49	40	73	44	36	73	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	78	78	78	78	78	78	78	78	76	78	78	60	78	78	54	78	63	49	64	57	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	78	78	54	78	61	48	61	55	43	55	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	64	64	45	64	57	40	64	51	36	64	46	32	58	42	29	52	38	26	48	34	24	40	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	58	41	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	64	54	39	64	48	35	59	43	31	53	38	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	48	35	25	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	73	58	48	73	52	42	73	46	38	73	42	34	67	38	31	60	34	28	54	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	66	37	31	58	33	27	52	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	78	78	57	78	65	51	65	58	46	58	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	64	53	37	64	47	33	59	42	30	53	38	27	48	34	24	43	31	22	39	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	48	34	24	42	30	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	62	44	33	55	40	29	49	35	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	40	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	75	48	39	75	43	35	73	38	32	60	35	28	54	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	80	60	47	60	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
20	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	39	47	47	35	47	42	30	47	36	25	43	31	22	37	27	19	33	24	17	29	21	15
			Exposed	47	47	42	47	47	38	47	47	34	47	43	30	47	39	27	47	36	25	45	32	23	38	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	48	48	48	48	48	48	48	48	46	48	48	41	48	48	37	48	46	34	48	42	31	48	35	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	48	48	37	48	45	33	48	40	30	48	36	27	45	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	58	58	58	58	58	58	58	58	56	58	58	50	58	55	45	58	50	41	58	46	38	58	38	32	57	33	27	49	28	23	43	25	20	37	22	18	33	19	16
			Exposed	58	55	45	58	49	40	58	44	36	58	39	32	58	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	60	64	64	54	64	63	49	64	57	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	64	64	54	64	61	48	61	55	43	55	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	47	47	45	47	47	40	47	47	36	47	46	32	47	42	29	47	38	26	47	34	24	40	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	47	41	29	47	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	48	48	39	48	48	35	48	43	31	48	38	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	48	35	25	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	58	58	48	58	52	42	58	46	38	58	42	34	58	38	31	58	34	28	54	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	58	37	31	58	33	27	52	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	64	64	57	64	64	51	64	58	46	58	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	47	47	37	47	47	33	47	42	30	47	38	27	47	34	24	43	31	22	39	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	47	34	24	42	30	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	48	44	33	48	40	29	48	35	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	40	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	60	48	39	60	43	35	60	38	32	60	35	28	54	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	66	60	47	60	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

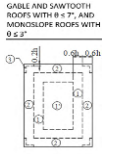
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

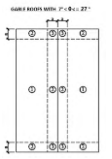
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

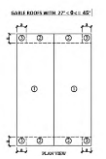
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

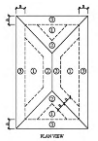












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

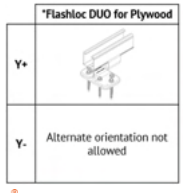
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	36	25	37	37	31	37	27	19	33	24	17	29	21	15
			Exposed	37	37	37	37	37	37	37	37	34	37	37	30	37	37	27	37	36	25	37	32	23	37	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	34	38	38	31	38	35	26	38	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	38	38	37	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	41	48	46	38	48	38	32	48	28	23	43	25	20	37	22	18	33	19	16			
			Exposed	48	48	45	48	48	40	48	44	36	48	39	32	48	36	29	48	32	27	48	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	54	54	54	54	54	48	54	54	43	54	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	29	37	37	26	37	34	24	37	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	37	37	29	37	37	26	37	33	23	37	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	38	38	38	38	38	35	38	38	31	38	38	28	38	35	26	38	32	23	38	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	38	35	25	38	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	48	48	48	48	48	42	48	46	38	48	42	34	48	38	31	48	34	28	48	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	48	37	31	48	33	27	48	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	54	54	54	54	54	51	54	54	46	54	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	33	37	37	30	37	37	27	37	34	24	37	31	22	37	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	37	34	24	37	30	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	38	38	33	38	38	29	38	35	26	38	32	23	38	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	38	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	50	48	39	50	43	35	50	38	32	50	35	28	50	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	50	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	57	57	47	57	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	25	35	31	22	35	27	19	33	24	17	29	21	15
			Exposed	35	35	35	35	35	35	35	35	34	35	35	30	35	35	27	35	35	25	35	32	23	35	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	35	26	35	30	22	35	26	19	31	23	17	28	20	15	24	18	13
			Exposed	35	35	35	35	35	33	35	35	30	35	35	27	35	33	24	35	30	22	35	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	32	41	33	27	41	28	23	41	25	20	37	22	18	33	19	16
			Exposed	41	41	41	41	41	40	41	41	36	41	39	32	41	36	29	41	32	27	41	30	24	41	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	45	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	47	47	47	47	47	47	47	47	43	47	47	39	47	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	35	26	35	34	24	35	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	35	35	29	35	35	26	35	33	23	35	30	21	35	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	35	35	35	35	35	35	35	35	31	35	35	28	35	35	26	35	32	23	35	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	35	35	25	35	31	23	35	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	41	41	41	41	41	41	41	41	38	41	41	34	41	38	31	41	34	28	41	31	26	41	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	41	37	31	41	33	27	41	30	25	41	27	22	41	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	46	47	47	41	47	47	37	45	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	47	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	33	37	37	30	37	37	27	37	34	24	37	31	22	37	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	37	34	24	37	30	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	38	38	33	38	38	29	38	35	26	38	32	23	38	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	38	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	43	43	39	43	43	35	43	38	32	43	35	28	43	31	26	43	28	23	43	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	43	31	26	43	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	50	50	47	50	50	42	50	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
50	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	25	30	30	22	30	27	19	30	24	17	29	21	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	23	30	27	19	30	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	23	17	28	20	15	24	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	22	30	27	20	30	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	33	27	35	28	23	35	25	20	34	22	18	33	19	16			
			Exposed	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	32	27	35	30	24	35	25	21	35	21	17	28	16	13	24	14	12	21	12	10	19	11	14
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	40	40	32	38	35	28	35	31	24	30	27	22	27	24	19
			Exposed	41	41	41	41	41	41	41	41	41	41	41	39	41	41	35	41	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	29	20	30	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	30	30	29	30	30	26	30	30	23	30	30	21	30	27	19	30	24	17	30	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	29	21	30	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	30	30	25	30	30	23	30	28	20	30	25	18	30	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	34	28	35	31	26	35	26	22	35	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	35	35	31	35	33	27	35	30	25	35	27	22	35	24	20	35	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	40	40	34	39	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	41	41	37	41	41	33	41	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	32	32	32	32	32	32	32	32	32	32	32	27	32	32	24	32	31	22	32	29	20	32	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	32	32	24	32	30	21	32	27	19	32	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	33	33	33	33	33	33	33	33	26	33	32	23	33	29	21	33	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	33	29	21	33	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	38	38	38	38	38	35	38	38	32	38	35	28	38	31	26	38	28	23	38	26	21	37	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	38	31	26	38	28	23	38	25	20	38	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	44	44	44	44	44	42	44	44	38	43	43	34	41	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

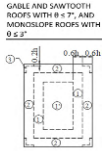
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

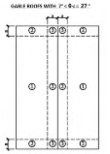
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

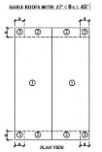
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

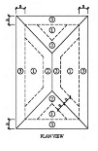












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

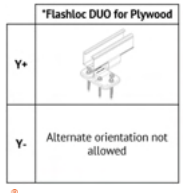
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	24	17	25	21	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	16	25	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	17	25	20	15	24	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	23	31	30	22	18	29	19	16					
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	30	24	31	25	21	31	21	18	31	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	32	34	34	28	33	31	24	30	27	22	27	24	19			
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	19	25	21	15	25	19	13	23	16	12	20	14	10
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	25	22	16	25	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	24	18	25	21	15	25	18	13	22	16	12
			Exposed	25	25	25	25	25	25	23	25	25	20	25	25	18	25	23	17	25	21	15	25	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	31	26	31	28	22	31	23	19	30	19	16	28	17	14	26	15	12	23	13	11
			Exposed	31	31	31	31	31	27	31	30	25	31	27	22	31	24	20	31	22	18	31	31	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	34	35	35	31	33	33	26	31	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	37	37	37	37	37	33	37	37	30	37	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	28	20	28	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	28	28	24	28	28	21	28	27	19	28	25	17	28	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	19	28	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	28	28	21	28	26	19	28	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	28	33	31	26	33	28	23	33	26	21	33	22	18	31	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	33	31	26	33	28	23	33	25	20	33	22	18	33	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	39	39	39	39	39	39	39	39	38	38	38	34	37	37	31	36	36	28	35	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	39	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
70	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	21	15
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	20	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	18	13
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	25	20	27	22	18	27	19	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	21	18	27	18	15	27	16	13	24	14	12	21	13	10
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	28	30	30	24	28	27	22	27	24	19
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	15	22	19	13	22	16	12	20	14	10	18	12	10
			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	21	15	22	18	13	22	16	12	19	14	10	17	12	14
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	21	15	22	22	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	23	19	27	19	16	26	17	14	25	15	12	23	13	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	24	20	27	22	18	27	27	20	17	27	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	27	33	31	24	33	33	28	32	32	25	30	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	33	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	24	21	15	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	24	24	24	24	24	21	24	24	19	24	24	17	24	22	16	24	20	14	24	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	18	24	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	24	24	21	24	24	19	24	23	17	24	21	15	24	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	28	23	30	26	21	29	22	18	28	19	15	27	16	13	24	14	12	21	12	10	19	11	14
			Exposed	30	30	26	30	28	23	30	25	20	30	22	18	30	20	17	30	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	36	36	36	36	36	36	36	36	36	35	35	34	34	34	31	33	33	28	32	32	26	30	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	36	36	31	36	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	22	18	24	19	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	21	16	24	18	13
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	24	26	26	22
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	25	29	27	21	26	23	18	23	20	16	20	18	14
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	22	24	24	20	24	24	17	24	24	17	24	24	17	24	24	17	24	24	17	24	24	17
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	14	21	18	12	21	15	11	19	14	15	17	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	19	13	21	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	21	21	21	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	19	13	21	18	13	21	15	11	18	13	15	16	11	13	14	10	11	12	9	10
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	26	19	15	25	16	13	24	14	12	21	12	10	19	11	14
			Exposed	26	26	26	26	26	23	26	25	20	26	22	18	26	20	17	26	18	15	26	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	30	28	30	30	26	28	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	33	33	31	33	33	27	33	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

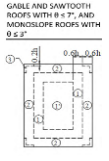
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

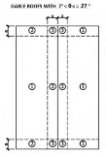
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

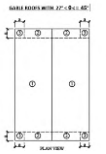
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

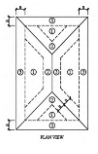












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

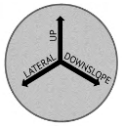
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

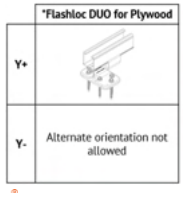
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	11	17	14	15
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	12	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	18	15	21	16	13	21	14	12	21	13	10
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	24	24	24	22	24	24	19
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	14	10
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	16	11	17	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	12	17	14	10	17	12	9	14	10	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	16	12	17	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	19	16	21	21	19	21	19	16	21	17	14	21	15	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	17	21	17	14	21	15	12	21	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	22	24	24	19	23	21	17	21	19	15	19	17	13
			Exposed	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	14	19	18	12	19	15	11	19	14	15	17	12	13
			Exposed	19	19	19	19	19	19	19	19	19	17	19	16	19	19	14	19	17	13	19	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	8	14	10	7		
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	17	13	19	15	11	18	13	15	16	11	13	14	10	11
			Exposed	19	19	19	19	19	19	19	19	17	19	15	19	19	14	19	17	13	19	16	11	18	13	15	15	11	13	13	15	11	12	13	10	10	11	8	14	10	7		
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	22	18	24	19	15	23	16	13	22	14	12	21	12	10	19	11	14	
			Exposed	24	24	24	24	24	23	24	24	20	24	22	18	24	20	17	24	18	15	24	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	28	28	26	26	26	22	25	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	30	30	30	30	30	27	30	30	25	30	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	15	15	15	12	15	15	11	15	14	15
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	12	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	19	14	12	19	13	10
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	22	22	22	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15	15	12	13	15	11	11	13	14	10
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	14	10	16	12	14
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	12	16	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	17	14	19	15	12	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	17	14	19	15	12	19	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	22	22	22	19	21	21	17	20	19	15	19	17	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	12	17	17	15	11	17	14	15	17	12	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	11	17	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	11	13	14	10	11
			Exposed	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	16	11	17	13	15	15	11	13	13	15	11	12	13	10	10	11	8	14	10	7		
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	19	15	21	16	13	21	14	12	20	12	10	19	11	14
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	17	21	18	15	21	17	14	21	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	17	16	12	15	14	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

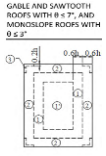
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

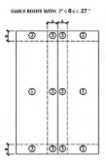
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

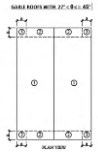
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

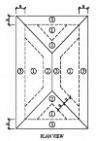












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

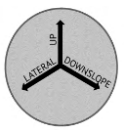
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

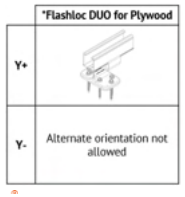
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	33	39	39	29	39	39	26	39	34	23	39	30	21	39	27	19	35	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	39	30	21	39	27	19	33	24	17	30	21	15	27	19	14	24	18	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	39	39	29	39	35	25	39	31	23	39	28	20	35	25	18	32	23	17	29	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	40	40	35	40	40	31	40	34	28	40	30	25	40	27	22	40	25	20	40	23	19	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	40	27	22	40	24	20	40	22	18	34	19	16	31	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	41	41	41	41	41	38	41	41	33	41	40	30	41	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	41	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	39	32	22	39	28	20	36	25	18	32	23	16	29	21	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	29	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	39	27	19	33	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	40	29	24	40	26	21	40	23	19	37	21	17	33	19	15	30	17	14	27	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	19	15	29	16	14	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	6	5	7	6	5
		27-45	Interior	41	37	28	37	32	25	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	38	26	18	33	23	16	29	21	15	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	7	5	6	7	5	8	6	4	7	5	9	5
		7-20	Interior	31	22	16	27	20	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	7	5	9	6	5	8	5	4	7	5	9	5	9	4
		20-27	Interior	40	24	20	38	21	17	33	19	16	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	15	11	8	12	10	7	9	7	6	11	6	8	9	8	6	8	7	6	8	5	6	5	6	4
		27-45	Interior	33	30	23	30	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
10	B	0-7	Interior	32	32	32	32	32	29	32	32	26	32	32	23	32	30	21	32	27	19	32	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	32	30	21	32	27	19	32	24	17	30	21	15	27	19	14	24	18	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	32	32	29	32	32	25	32	31	23	32	28	20	32	25	18	32	23	17	29	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	32	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	37	37	35	37	37	31	37	34	28	37	30	25	37	27	22	37	25	20	37	23	19	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	37	27	22	37	24	20	37	22	18	34	19	16	31	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	39	39	39	39	39	38	39	39	33	39	39	30	39	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	39	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	32	32	22	32	28	20	32	25	18	32	23	16	29	21	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	29	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	32	27	19	32	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	37	29	24	37	26	21	37	23	19	37	21	17	33	19	15	30	17	14	27	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	19	15	29	16	14	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	39	37	28	37	32	25	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	32	26	18	32	23	16	29	21	15	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	7	5	6	7	5	8	6	4	7	5	9	5
		7-20	Interior	31	22	16	27	20	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	9	6	5	8	5	4	7	5	9	5	9	4
		20-27	Interior	38	24	20	38	21	17	33	19	16	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	15	11	8	12	10	7	9	7	6	11	6	8	9	8	6	8	7	6	8	5	6	5	6	4
		27-45	Interior	33	30	23	30	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
20	B	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	18	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	24	24	24	24	24	24	24	24	23	24	24	20	24	24	18	24	23	17	24	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	24	24	18	24	22	16	24	20	15	24	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	27	22	29	25	20	29	23	19	29	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	29	27	22	29	24	20	29	22	18	29	19	16	29	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	32	32	27	32	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	23	23	22	23	23	20	23	23	18	23	23	16	23	21	14	23	19	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	23	20	14	23	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	24	24	19	24	24	17	24	21	15	24	19	14	24	17	13	22	16	11	20	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	29	29	24	29	26	21	29	23	19	29	21	17	29	19	15	29	17	14	27	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	29	19	15	29	16	14	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	32	32	28	32	32	25	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	7	5	6	7	5	8	6	4	7	5	9	5
		7-20	Interior	24	22	16	24	20	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	9	6	5	8	5	4	7	5	9	5	9	4
		20-27	Interior	30	24	20	30	21	17	30	19	16	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	7	6	5	4
		27-45	Interior	33	30	23	30	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5

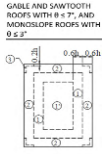
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

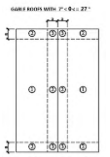
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

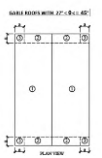
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

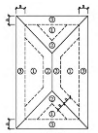












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

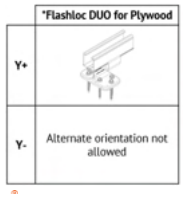
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	15	11	18	13	9	16	12	8	14	10	7			
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	18	12	19	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	19	15	19	18	13	19	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	19	19	18	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	19	24	19	16	24	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	24	24	22	24	24	20	24	22	18	24	19	16	24	18	14	24	16	13	24	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	22	19	23	20	16	20	17	14	17	15	12	15	13	11	13	12	9			
			Exposed	27	27	27	27	27	24	27	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	19	13	19	17	12	19	14	10	17	12	9	14	10	7	13	9	6	11	8	8	10	7	8
			Exposed	19	19	14	19	18	13	19	16	11	19	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	19	19	19	19	19	17	19	19	15	19	19	14	19	17	13	19	16	11	19	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	19	17	12	19	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	24	24	24	24	24	21	24	23	19	24	21	17	24	19	15	24	17	14	24	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	24	19	15	24	16	14	24	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	27	27	27	27	27	25	27	27	23	27	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	19	19	18	19	19	16	19	19	15	19	19	13	19	17	12	19	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	19	17	12	19	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	14	19	17	13	19	16	11	19	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	19	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	7	6	7	8	5	6	6	5	6	7	5	8	5	4
		20-27	Interior	25	24	20	25	21	17	25	19	16	25	17	14	25	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	25	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	8	7	6	7	6	5
		27-45	Interior	28	28	23	28	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
40	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	15	11	17	13	9	16	12	8	14	10	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	13	9	14	10	7	12	9	6	11	8	6	10	7	8	9	7	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	9	15	11	8	14	10	7	12	9	6
			Exposed	17	17	17	17	17	16	17	17	15	17	17	13	17	16	12	17	15	11	17	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	16	20	16	13	20	14	11	20	12	10	18	11	9	16	9	8
			Exposed	20	20	20	20	20	20	20	20	18	20	19	16	20	18	14	20	16	13	20	15	12	20	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	22	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	17	17	14	17	17	13	17	16	11	17	15	10	17	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	11	17	17	12	17	14	10	17	12	9	14	10	7	12	9	6	11	8	8	9	7	7
			Exposed	17	17	12	17	15	11	17	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	20	17	14	20	15	13	20	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	20	19	15	20	16	14	20	15	12	20	13	11	20	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	23	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	18	18	18	18	18	16	18	18	15	18	18	13	18	17	12	18	15	11	18	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	18	17	12	18	15	10	18	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	14	19	17	13	19	16	11	19	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	19	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	7	8	5	6	6	5	6	7	5	8	5	4
		20-27	Interior	21	21	20	21	21	17	21	19	16	21	17	14	21	15	13	21	14	11	21	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	21	15	13	21	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
50	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	11	15	13	9	15	12	8	14	10	7			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	15	11	15	13	10	15	11	8	13	10	7	11	8	6	10	7	8	9	6	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13	17	14	11	17	12	10	17	11	9	16	9	8
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	15	12	17	15	12	17	15	10	17	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	16	19	17	14	17	15	12	15	13	11	13	12	9
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	13	9	6	11	8	9	10	7	8			
			Exposed	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	13	11	17	11	9	16	9	8	14	8	7	13	7	6	11	6	8			
			Exposed	17	17	15	17	16	14	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	20	20	17	19	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	21	21	18	21	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6			
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	19	19	19	19	19	17	19	19	16	19	17	14	19	15	13	19	14	11	19	13	10	18	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	19	15	13	19	14	11	19	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	22	22	22	22	22	21	22	22	19	21	21	17	21	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5

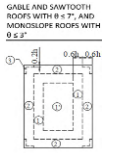
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

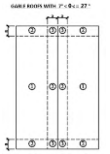
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

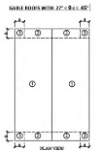
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

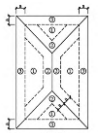












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

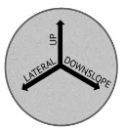
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

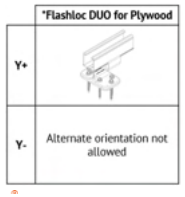
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	8	12	10	7
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	9	13	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	11	15	12	10	15	11	9	15	9	8	15	12	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	12	10	15	10	9	15	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	14	16	15	12	15	13	10	13	11	9	11	10	8
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	10	12	12	9	12	12	9	6	11	8	9	10	7
			Exposed	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	11	8	12	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	10	7	12	9	6	11	8	9	13	10	7	8	8	6
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	13	15	13	11	15	11	9	15	9	8	14	8	7	13	7	6	11	6	8
			Exposed	15	15	15	15	15	14	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	17	17	15	16	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	6	8	7	6	7	6	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	14	14	12	14	14	10	14	13	9	14	12	8	14	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	7	5	9	6	5	8	5	4	7	5	3			
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13	17	14	11	17	13	10	16	11	9	15	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	17	15	13	17	14	11	17	12	10	17	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	19	19	17	19	19	15	18	18	14	17	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	20	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
70	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	11	11	11	9	11	11	8	11	9	7	8	9	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	10	7	11	8	6	10	7	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	9	8	13	9	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	9	13	9	7	13	8	6	12	7	9	10	6	8
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	11	15	14	11	13	12	9
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	13	8	7	12	7	6	11	6	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	9	12	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	7	11	8	6	10	8	9	9	6	7	7	8	6	9	6	5	8	5	4	7	5	3			
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	13	10	15	11	9	14	9	7	13	8	6	12	7	9	10	6	8	9	8	7
			Exposed	15	15	13	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	17	17	17	17	14	16	16	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	18	18	15	18	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	8	7	6	7	6	5	6	5	4	5	4	3
80	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	9	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	7	8	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	9	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	9	12	9	7	12	8	6	12	7	9	11	6	8
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	12	13	13	11	12	12	9	
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	9	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	6	9	8	6	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9	9	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	9	8	12	8	7	11	7	6	11	6	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	13	13	13	11	12	12	9	12	10	8	10	9	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	10	7	11	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	10	8	9	9	6	7	7	8	6	9	6	5	8	5	4	7	5	3			
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	9	12	9	7	12	8	6	12	7	9	10	6	8	9	8	7
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	15	15	15	14	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	15	16	16	13	16	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	8	7	5

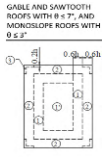
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

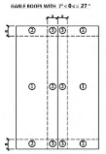
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

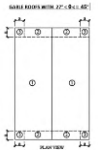
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

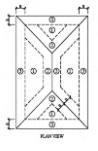












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

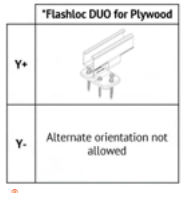
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	9	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	10	10	9	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	9	10	6	8
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	12	12	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	11	10	8	10	9	7	9	8	6	9	7	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	8	8	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	9	8	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	9	10	6	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	6	8	9	8	7	8	7	6	7	6	5	7	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	9	11	10	8	10	9	7	9	9	7	9	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	7	8	9	7	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	9	6	9	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	8	9	6	7	8	8	6	7	7	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	8	6	9	8	9	9	6	7	7	8	6	7	8	5	8	5	4	7	5	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	9	7	11	8	6	11	7	9	10	6	8	9	8	7
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	13	13	13	11	12	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
100	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	7	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	8	8	6	7	8	9	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	9	9	6	8
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	11	10	8	10	9	7	9	9	7	9	8	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	9	7	7	8
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	7	6	6	7	8	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	8	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	7	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	8	9	8	7	8	7	6	8	7	6
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	8	8	8	8	6	8	7	8	8	6	7	8	9	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	9	8	6	7	7	8	6	7	5	9	6	5	8	5	4	7	5	9	5
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	9	9	6	8	9	8	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	7	9	10	6	7	9	8	6	8	7	6	8	7	6	8	7	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	11	11	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5

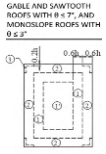
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

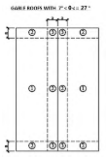
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

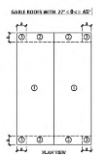
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

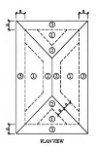












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

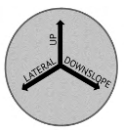
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

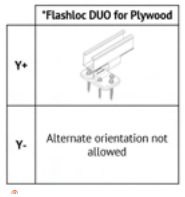
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	76	76	65	76	76	57	76	76	51	76	69	46	76	60	42	76	54	38	76	49	34	58	41	29	49	35	25	42	30	21	37	26	19	32	23	16	28	21	15
			Exposed	76	60	41	76	53	37	68	47	33	59	42	30	53	38	27	48	35	24	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	77	77	57	77	77	50	77	62	45	77	55	40	77	50	36	63	45	33	57	41	30	48	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	77	50	36	61	44	32	55	39	29	49	36	26	44	32	24	40	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	78	78	78	78	78	61	78	78	55	78	60	49	78	54	44	78	49	40	78	45	37	67	38	31	56	32	26	48	28	23	42	24	20	37	21	17	32	19	15
			Exposed	78	54	44	78	48	39	78	43	35	75	38	32	61	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	79	79	79	79	79	79	79	79	65	79	79	59	79	77	53	79	61	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	79	75	53	79	60	47	60	53	42	54	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	76	63	44	76	56	39	76	50	35	63	45	31	57	41	28	51	37	26	47	34	24	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	56	40	28	50	36	25	45	32	23	40	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	77	53	38	65	47	34	58	42	31	52	38	28	47	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	47	34	25	42	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	78	57	47	78	51	42	78	45	37	78	41	33	64	37	30	58	33	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	64	37	30	57	33	27	51	29	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	79	79	56	79	63	50	64	57	45	57	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	76	52	36	65	46	32	58	41	29	52	37	26	47	34	24	42	31	21	39	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	46	33	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	60	43	32	54	39	28	48	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	78	47	39	78	42	34	66	37	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	79	59	46	59	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	15	12	15	13	11
10	B	0-7	Interior	62	62	62	62	62	57	62	62	51	62	62	46	62	60	42	62	54	38	62	49	34	58	41	29	49	35	25	42	30	21	37	26	19	32	23	16	28	21	15
			Exposed	62	60	41	62	53	37	62	47	33	59	42	30	53	38	27	48	35	24	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	63	63	57	63	63	50	63	62	45	63	55	40	63	50	36	63	45	33	57	41	30	48	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	63	50	36	61	44	32	55	39	29	49	36	26	44	32	24	40	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	71	71	71	71	71	61	71	71	55	71	60	49	71	54	44	71	49	40	71	45	37	67	38	31	56	32	26	48	28	23	42	24	20	37	21	17	32	19	15
			Exposed	71	54	44	71	48	39	71	43	35	71	38	32	61	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	77	77	77	77	77	77	77	77	65	77	77	59	77	77	53	77	61	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	77	75	53	77	60	47	60	53	42	54	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	62	62	44	62	56	39	62	50	35	62	45	31	57	41	28	51	37	26	47	34	24	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	56	40	28	50	36	25	45	32	23	40	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	63	53	38	63	47	34	58	42	31	52	38	28	47	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	47	34	25	42	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	71	57	47	71	51	42	71	45	37	71	41	33	64	37	30	58	33	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	64	37	30	57	33	27	51	29	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	77	77	56	77	63	50	64	57	45	57	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	62	52	36	62	46	32	58	41	29	52	37	26	47	34	24	42	31	21	39	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	46	33	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	60	43	32	54	39	28	48	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	73	47	39	73	42	34	66	37	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	78	59	46	59	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	15	12	15	13	11
20	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	38	46	46	34	46	41	29	46	35	25	42	30	21	37	26	19	32	23	16	28	21	15
			Exposed	46	46	41	46	46	37	46	46	33	46	42	30	46	38	27	46	35	24	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	46	46	46	46	46	46	46	46	45	46	46	40	46	46	36	46	45	33	46	41	30	46	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	46	46	36	46	44	32	46	39	29	46	36	26	44	32	24	40	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	56	56	56	56	56	56	56	56	55	56	56	49	56	54	44	56	49	40	56	45	37	56	38	31	56	32	26	48	28	23	42	24	20	37	21	17	32	19	15
			Exposed	56	54	44	56	48	39	56	43	35	56	38	32	56	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	59	63	63	53	63	61	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	63	63	53	63	60	47	60	53	42	54	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	46	46	44	46	46	39	46	46	35	46	45	31	46	41	28	46	37	26	46	34	24	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	46	40	28	46	36	25	45	32	23	40	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	46	46	38	46	46	34	46	42	31	46	38	28	46	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	46	34	25	42	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	56	56	47	56	51	42	56	45	37	56	41	33	56	37	30	56	33	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	56	37	30	56	33	27	51	29	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	63	63	56	63	63	50	63	57	45	57	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	46	46	36	46	46	32	46	41	29	46	37	26	46	34	24	42	31	21	39	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	46	33	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	46	43	32	46	39	28	46	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	59	47	39	59	42	34	59	37	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	65	59	46	59	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	15	12	15	13	11

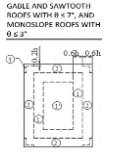
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

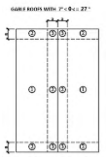
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

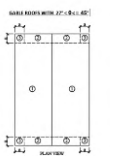
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

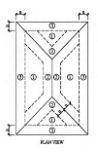












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

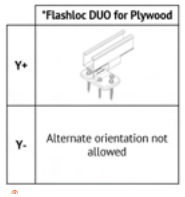
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	35	25	37	30	21	37	26	19	32	23	16	28	21	15
			Exposed	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	35	24	37	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	37	35	26	37	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	37	37	36	37	37	32	37	37	29	37	36	26	37	32	24	37	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	45	37	47	38	31	47	32	26	47	28	23	42	24	20	37	25	17	32	19	15
			Exposed	47	47	44	47	47	39	47	43	35	47	38	32	47	35	29	47	32	26	47	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	53	53	53	53	53	47	53	53	42	53	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	31	37	37	28	37	37	26	37	34	24	37	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	10	18	13	9
			Exposed	37	37	28	37	36	25	37	32	23	37	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	37	37	37	37	37	34	37	37	31	37	37	28	37	34	25	37	31	23	37	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	37	34	25	37	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	47	47	47	47	47	42	47	45	37	47	41	33	47	37	30	47	33	28	47	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	47	47	30	47	47	33	47	27	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	53	53	53	53	53	50	53	53	45	53	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	37	37	36	37	37	32	37	37	29	37	37	26	37	34	24	37	31	21	37	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	37	33	23	37	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	37	37	32	37	37	28	37	35	25	37	31	23	37	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	37	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	49	47	39	49	42	34	49	37	31	49	34	28	49	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	49	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	55	55	46	55	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
40	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	29	34	34	25	34	30	21	34	26	19	32	23	16	28	21	15
			Exposed	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	34	24	34	32	22	34	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	34	26	34	30	22	34	26	19	31	22	16	27	20	14	24	17	13
			Exposed	34	34	34	34	34	32	34	34	29	34	34	26	34	32	24	34	29	22	34	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	38	31	40	32	26	40	28	23	40	24	20	37	21	17	32	19	15
			Exposed	40	40	40	40	40	39	40	40	35	40	38	32	40	35	29	40	32	26	40	29	24	40	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37	44	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	46	46	46	46	46	46	46	46	42	46	46	38	46	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	31	34	34	28	34	34	26	34	34	24	34	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	10	18	13	9
			Exposed	34	34	28	34	34	25	34	32	23	34	29	20	34	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	34	25	34	31	23	34	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	34	34	25	34	30	22	34	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	40	40	40	40	40	40	40	40	37	40	40	33	40	37	30	40	33	28	40	31	25	40	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	40	37	30	40	33	27	40	29	24	40	26	22	40	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	46	46	46	46	46	46	46	46	45	46	46	40	46	46	36	44	42	33	43	38	30	36	32	26	31	28	23	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	46	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	36	36	36	36	36	32	36	36	29	36	36	26	36	34	24	36	31	21	36	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	36	33	23	36	30	21	36	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	37	37	32	37	37	28	37	35	25	37	31	23	37	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	37	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	42	42	39	42	42	34	42	37	31	42	34	28	42	31	25	42	28	23	42	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	42	30	25	42	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	48	48	46	48	48	41	48	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
50	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	21	29	26	19	29	23	16	28	21	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	29	22	29	27	19	29	23	16	27	20	14	24	17	12	21	15	11	18	13	14	16	11	13
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	22	16	27	20	14	24	17	13
			Exposed	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	29	22	30	27	20	30	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	32	26	34	28	23	34	24	20	33	21	17	32	19	15
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	32	26	34	34	29	34	32	24	34	24	20	34	24	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	39	39	32	37	35	27	34	30	24	30	27	21	26	24	19
			Exposed	40	40	40	40	40	40	40	40	40	40	40	38	40	40	34	40	40	31	40	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	26	29	29	24	29	28	20	29	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	29	29	28	29	29	25	29	29	23	29	29	20	29	26	18	29	24	17	29	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	28	30	30	25	30	30	23	30	28	21	30	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13	
			Exposed	30	30	25	30	30	22	30	27	20	30	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	33	28	34	31	25	34	26	21	34	22	18	32	19	16	29	17	14	25	15	12	22	13	11
			Exposed	34	34	30	34	33	27	34	29	24	34	26	22	34	24	20	34	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	39	39	33	38	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	40	40	36	40	40	32	40	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	31	31	31	31	31	31	31	31	29	31	31	26	31	31	24	31	31	21	31	28	20	31	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	31	31	23	31	30	21	31	27	19	31	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	32	32	32	32	32	28	32	32	25	32	31	23	32	28	21	32	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	32	28	21	32	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	37	37	37	37	37	34	37	37	31	37	34	28	37	31	25	37	28	23	37	25	21	36	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	37	30	25	37	27	22	37	24	20	37	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	43	43	43	43	43	43	43	43	37	42	42	33	40	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11

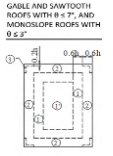
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

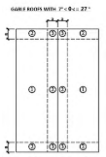
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

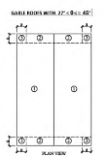
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

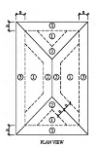












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

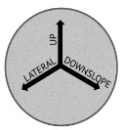
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

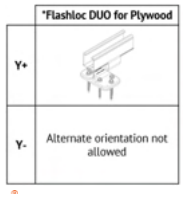
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	23	16	25	21	15			
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	24	25	25	22	25	25	19	25	23	16	25	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	16	25	20	14	24	17	13		
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	23	30	30	26	30	24	20	30	27	21	26	24	19
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	29	24	30	24	20	30	21	17	30	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	32	33	33	27	32	30	24	30	27	21	26	24	19
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	24	17	25	21	15	25	18	13	22	16	11	20	14	15
			Exposed	25	25	25	25	25	25	25	25	23	25	25	20	25	25	18	25	24	17	25	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	18	25	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	25	25	25	25	25	22	25	25	20	25	24	18	25	22	16	25	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	25	30	26	21	30	22	18	29	19	16	28	17	14	25	15	12	22	13	11
			Exposed	30	30	30	30	30	27	30	29	24	30	26	22	30	24	20	30	22	18	30	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	33	34	34	30	33	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	36	36	36	36	36	32	36	36	29	36	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	24	17	27	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	27	27	23	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	26	19	28	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	28	28	21	28	25	18	28	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	33	33	33	33	33	33	33	33	31	33	33	28	33	31	25	33	28	23	33	25	21	32	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	33	30	25	33	27	22	33	24	20	33	22	18	33	30	21	30	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	37	38	38	33	36	36	30	35	35	28	34	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	38	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	21	15		
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	20	14	21	17	12	21	15	11	18	13	14
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	20	14
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	17	22	19	14	22	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	23	27	24	20	27	21	17	26	19	15
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	24	20	27	21	17	27	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	30	30	27	29	29	24	28	27	21	26	24	19
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	29	33	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12			
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	13	21	16	11	20	14	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	20	15	22	18	13	21	15	11	19	13	15	16	12	13
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	20	15	22	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	22	18	26	19	16	25	17	14	24	15	12	22	13	11
			Exposed	27	27	27	27	27	24	27	26	22	27	24	20	27	22	18	27	22	18	27	20	16	27	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	32	31	31	30	30	26	28	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	33	33	33	33	33	32	33	33	29	33	33	26	33	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	20	23	23	17	23	20	14	23	17	12	21	15	11	18	13	14	16	12	13
			Exposed	23	23	23	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	23	17	24	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	24	24	21	24	24	18	24	22	17	24	20	15	24	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	28	29	25	29	28	23	29	25	21	29	21	18	28	18	15	27	16	13	24	14	11	21	12	15	18	11	14			
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	35	35	35	35	35	35	35	35	34	34	33	33	33	33	30	32	32	28	31	31	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	35	35	30	35	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	14
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	13
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	15
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	15
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	27	27	27	24
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	26	21	25	24	19			
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	18	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	19	18	13	19	16	11	19	14	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	13	19	15	11
			Exposed	19	19	19	19	19	19	19	19	19	19	19	16	19	19	15	19	19	15	19	18	14	19	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	23	19	16	23	17	14	22	15	12	21	13	11
			Exposed	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	22	18	23	20	16	23	17	14	23	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	26	26	26	22	25	24	19	23	21	17	21	18	15	18	16	13
			Exposed	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	29	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	20	14	21	17	12	21	15	11	18	13	14	16	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	20	14	21	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	15	21	18	13	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	21	21	21	21	21	18	21	21	17	21	20	15	21	18	14	21	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	25	21	26	21	18	25	18	15	24	16	13	23	14	11	21	12	15	18	11	14
			Exposed	26	26	25	26	26	22	26	24	20	26	22	18	26	20	16	26	18	15	26	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	32	32	32	32	32	32	32	32	32	31	31	31	31	31	30	30	30	28	29	29	25	27	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	32	32	30	32	32	27	32	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11

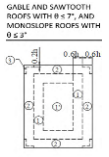
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

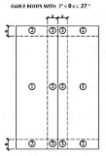
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

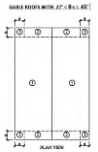
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

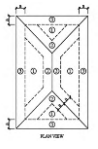












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

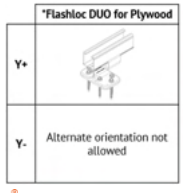
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	11	17	13	14
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	14	11	17	13	14	16	11	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	19	15			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	18	15	21	16	13	21	14	11	21	12	15
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	21	25	23	18	22	20	16
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	15	16	12	13	14	16	11	13	14	~~10~~
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	12	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	14	17	15	11	17	13	15	16	11	13	14	15	11	12	13	~~10~~	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	19	16	21	17	14	20	15	12	20	13	11			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	20	21	17	14	21	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	21	17	21	18	15	18	16	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13			
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	17	12	18	15	11	18	13	14	16	12	13
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	15	11	18	13	14	16	11	12	14	15	~~11~~	12	13	~~9~~	16	12	~~8~~		
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	17	12	19	15	11	18	13	14	15	11	13	14	15	11
			Exposed	19	19	19	19	19	18	19	19	17	19	19	15	19	18	14	19	17	12	19	15	11	18	13	14	15	11	12	13	14	11	11	13	~~9~~	15	11	~~8~~	14	~~10~~	~~7~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	21	18	23	18	15	22	16	13	22	14	11	21	12	15	18	11	14
			Exposed	23	23	23	23	23	22	23	23	20	23	22	18	23	20	16	23	18	15	23	17	14	23	14	11	20	12	15	18	10	13	15	14	11	14	12	~~10~~	12	11	~~9~~
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	27	25	26	26	21	24	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	13	14
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	13	~~14~~	15	11	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	15	19	16	13	19	14	11	19	12	15
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	21	21	21	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15	15	12	13	14	16	11	13	14	~~10~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	11	15	13	15	15	12	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	11	15	13	15	15	11	13	14	15	~~11~~	12	13	~~10~~	11	12	~~9~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	17	14	19	15	12	18	13	11			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	17	14	19	14	12	19	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	21
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	13	14	16	11	12	14	15	~~11~~	12	13	~~9~~	16	12	~~8~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	15	11	17	13	14	15	11	13	14	15	11
			Exposed	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	15	11	17	13	14	15	11	12	13	14	11	11	13	~~9~~	15	11	~~8~~	14	~~10~~	~~7~~		
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	18	21	18	15	21	16	13	20	14	11	20	12	15	18	11	14
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	17	14	21	14	11	20	12	15	18	10	13	15	14	11	14	12	~~10~~	12	11	~~9~~
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	21	23	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	26	26	26	26	26	26	26	26	24	26	26	22	26	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11

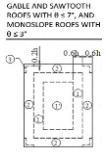
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

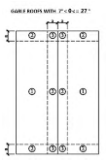
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

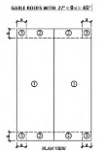
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

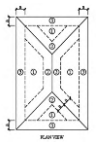












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

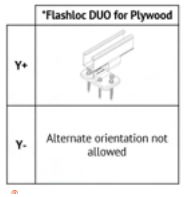
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	39	47	47	35	47	46	31	47	40	28	47	36	25	47	33	23	42	30	21	35	25	18	30	21	15	26	18	13	22	16	11	19	14	10	17	12	9
			Exposed	47	36	25	46	32	22	40	29	20	36	26	18	32	23	16	29	21	15	27	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	47	47	34	47	42	30	47	37	27	47	34	24	42	30	22	38	27	20	35	25	18	29	21	15	25	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	42	30	22	37	27	20	33	24	18	30	21	16	27	19	14	24	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	48	48	42	48	48	37	48	40	33	48	36	30	48	33	27	48	30	24	48	27	22	40	23	19	34	19	16	29	17	14	25	15	12	22	13	10	20	11	9
			Exposed	48	33	27	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	48	48	48	48	48	46	48	48	40	48	47	36	48	41	32	42	37	29	38	34	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	48	41	32	41	36	28	36	32	26	33	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	47	38	27	47	34	24	43	30	21	38	27	19	34	25	17	31	22	16	28	20	14	24	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	34	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	46	32	23	40	28	21	35	25	19	32	23	17	29	21	15	26	19	14	24	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	48	35	28	48	31	25	48	27	22	44	25	20	39	22	18	35	20	17	32	18	15	27	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	39	22	18	34	20	16	31	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	48	44	34	44	38	30	39	34	27	35	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	45	32	22	39	28	20	35	25	17	31	22	16	28	20	14	26	18	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	28	20	14	25	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	37	26	19	33	23	17	29	21	15	26	19	14	24	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	23	46	25	21	40	23	19	36	20	17	32	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	36	28	36	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	7	8	7	6	7	6	5	7	6	5
10	B	0-7	Interior	38	38	38	38	38	35	38	38	31	38	38	28	38	36	25	38	33	23	38	30	21	35	25	18	30	21	15	26	18	13	22	16	11	19	14	10	17	12	9
			Exposed	38	36	25	38	32	22	38	29	20	36	26	18	32	23	16	29	21	15	27	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	38	38	34	38	38	30	38	37	27	38	34	24	38	30	22	38	27	20	35	25	18	29	21	15	25	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	38	30	22	37	27	20	33	24	18	30	21	16	27	19	14	24	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	44	44	42	44	44	37	44	40	33	44	36	30	44	33	27	44	30	24	44	27	22	40	23	19	34	19	16	29	17	14	25	15	12	22	13	10	20	11	9
			Exposed	44	33	27	44	29	24	44	26	21	41	23	19	37	21	17	33	19	16	30	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	47	47	47	47	47	46	47	47	40	47	47	36	47	41	32	42	37	29	38	34	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	47	41	32	41	36	28	36	32	26	33	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	38	38	27	38	34	24	38	30	21	38	27	19	34	25	17	31	22	16	28	20	14	24	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	34	24	17	30	22	15	27	19	14	24	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	38	32	23	38	28	21	35	25	19	32	23	17	29	21	15	26	19	14	24	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	44	35	28	44	31	25	44	27	22	44	25	20	39	22	18	35	20	17	32	18	15	27	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	39	22	18	34	20	16	31	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	47	44	34	44	38	30	39	34	27	35	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	38	32	22	38	28	20	35	25	17	31	22	16	28	20	14	26	18	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	28	20	14	25	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	37	26	19	33	23	17	29	21	15	26	19	14	24	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	23	46	25	21	40	23	19	36	20	17	32	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	36	28	36	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
20	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	25	18	28	21	15	26	18	13	22	16	11	19	14	10	17	12	9
			Exposed	28	28	25	28	28	22	28	28	20	28	26	18	28	23	16	28	21	15	27	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	27	20	28	25	18	28	21	15	25	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	28	28	22	28	27	20	28	24	18	28	21	16	27	19	14	24	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	34	34	34	34	34	34	34	34	33	34	34	30	34	33	27	34	30	24	34	27	22	34	23	19	34	19	16	29	17	14	25	15	12	22	13	10	20	11	9
			Exposed	34	33	27	34	29	24	34	26	21	34	23	19	34	21	17	33	19	16	30	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	32	38	37	29	38	34	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11			
			Exposed	38	38	32	38	36	26	33	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7			
	C	0-7	Interior	28	28	27	28	28	24	28	28	21	28	27	19	28	25	17	28	22	16	28	20	14	24	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	28	24	17	28	22	15	27	19	14	24	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	28	28	23	28	28	21	28	25	19	28	23	17	28	21	15	26	19	14	24	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	34	34	28	34	31	25	34	27	22	34	25	20	34	22	18	34	20	17	32	18	15	27	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	34	22	18	34	20	16	31	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	38	38	34	38	38	30	38	34	27	35	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	28	28	22	28	28	20	28	25	17	28	22	16	28	20	14	26	18	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	28	20	14	25	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	28	26	19	28	23	17	28	21	15	26	19	14	24	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	36	29	23	36	25	21	36	23	19	36	20	17	32	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	36	28	36	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6

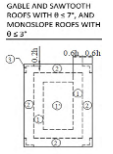
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

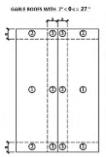
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

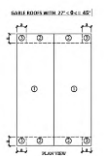
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

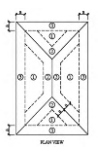












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

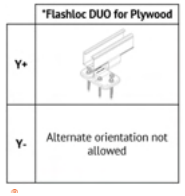
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	21	22	22	18	22	21	15	22	18	13	22	16	11	19	14	10	17	12	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	23	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	23	23	22	23	23	20	23	23	18	23	21	16	23	19	14	23	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	27	22	28	23	19	28	19	16	28	17	14	25	15	12	22	13	10	20	11	9
			Exposed	28	28	27	28	28	24	28	26	21	28	23	19	28	21	17	28	19	16	28	17	14	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	29	32	32	27	32	29	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	32	32	32	32	32	28	32	32	26	32	29	23	30	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	20	14	22	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	22	22	17	22	22	15	22	19	14	22	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	23	20	15	23	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	28	28	28	28	28	26	28	28	25	28	28	22	28	28	18	28	28	20	28	23	17	28	18	15	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	28	28	18	28	28	20	28	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	32	32	32	32	32	30	32	32	27	32	31	24	31	28	22	28	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	20	22	22	17	22	22	16	22	20	14	22	18	13	22	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	22	20	14	22	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	30	29	23	30	25	21	30	23	19	30	20	17	30	18	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	30	18	15	28	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	34	34	28	34	32	25	32	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
40	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	18	13	21	16	11	19	14	10	17	12	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	13	21	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	15	21	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	21	21	21	21	21	21	21	21	18	21	21	16	21	19	14	21	18	13	21	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	23	19	24	19	16	24	17	14	24	15	12	22	13	10	20	11	9
			Exposed	24	24	24	24	24	24	24	24	21	24	23	19	24	21	17	24	19	16	24	17	14	24	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	28	28	28	28	28	28	28	28	26	28	28	23	28	26	21	27	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	21	21	17	21	21	15	21	19	14	21	18	12	21	16	11	20	14	10	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	21	20	15	21	18	13	21	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	24	24	24	24	24	24	24	24	22	24	24	20	24	22	18	24	20	17	24	18	15	24	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	24	22	18	24	20	16	24	18	15	24	16	13	24	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	8	11	10	8
			Exposed	28	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	22	22	22	17	22	22	16	22	20	14	22	18	13	22	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	22	20	14	22	18	13	22	16	11	20	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	22	22	19	22	22	17	22	21	15	22	19	14	22	17	13	21	15	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	22	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	26	26	23	26	25	21	26	23	19	26	20	17	26	18	15	24	17	14	22	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	26	18	15	26	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	30	30	28	30	30	25	30	28	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
50	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	17	12	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	18	11	18	14	10	16	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	15	11	18	13	10	16	12	9	14	10	8
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	14	18	18	13	18	16	12	18	14	10	16	12	8	14	10	7	12	9	6	11	8	9	9	7	8
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	19	16	21	17	14	21	15	12	20	13	10	20	11	9
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	17	14	21	15	12	16	9	8	14	8	7	13	7	6	11	8	7	13	7	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	24	24	19	22	21	17	20	18	14	18	16	13	16	14	11
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	19	25	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	17	12	18	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	18	18	17	18	18	15	18	18	14	18	18	12	18	16	11	18	14	10	18	13	9	15	11	8	13	9	6	11	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	13	18	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	18	18	15	18	18	13	18	16	12	18	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	20	17	21	18	15	21	16	13	21	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	21	21	18	21	20	16	21	18	15	21	16	13	21	14	12	21	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	24	24	20	23	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	25	25	22	25	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	18	13	19	17	12	19	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	14	19	18	13	19	16	11	19	14	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	14	19	17	13	19	15	11	19	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	19	17	12	19	15	11	19	14	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4	8	6	4
		20-27	Interior	22	22	22	22	22	21	22	22	19	22	20	17	22	18	15	22	17	14	22	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
			Exposed	22	18	15	22	16	13	22	15	12	22	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	26	26	26	26	26	25	26	26	22	25	25	20	25	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6

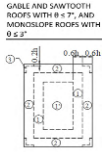
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

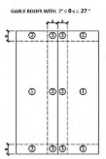
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

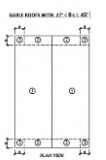
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

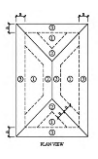












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

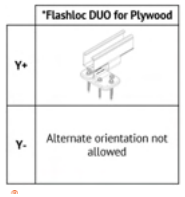
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	13	9	6	11	8	9
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	15	13	10	15	12	9	14	10	8			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	12	9	6	11	8	9	9	7	8		
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	18	13	10	17	11	9			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	17	14	19	15	12	19	13	10	19	11	9	16	9	8	14	8	7	13	7	6		
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	19	20	20	17	19	18	14	18	16	13	16	14	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	21	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7		
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	8	13	10	7	12	8	6
			Exposed	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	6	6		
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	12	9	15	11	8	13	9	7	11	8	6	10	7	5		
			Exposed	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	12	9	15	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	6	7	5		
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	18	15	19	16	13	18	13	11	18	11	9	17	10	8	15	9	7	13	8	6		
			Exposed	19	19	18	19	19	16	19	18	15	19	16	13	19	14	12	19	13	11	19	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	5	6		
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	20	21	21	18	20	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8		
			Exposed	22	22	22	22	22	20	22	22	18	22	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8		
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	12	8	14	10	7	13	9	6	11	8	9	10	7	8		
			Exposed	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5		
		7-20	Interior	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	14	10	16	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7		
			Exposed	17	17	12	17	15	11	17	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4		
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	18	15	20	17	14	20	15	13	19	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8		
			Exposed	20	18	15	20	16	13	20	15	12	20	13	11	20	12	10	19	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5		
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	22	22	18	22	21	17	21	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6		
			Exposed	23	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	9	7	6	7	9	8	6	
70	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	8	13	10	7	13	9	6	11	8	9		
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	10	8		
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	12	8	13	10	7	12	9	6	11	8	9		
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	10	16	11	9		
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	10	16	11	9	16	9	8	14	8	7	13	7	6		
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	17	18	18	14	17	16	13	16	14	11		
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	18	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7		
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	9	13	11	8	13	10	7	12	8	6			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	9	10	7	8	9	6	7	8	6	6		
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	11	8	12	9	7	11	8	6		
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	13	11	8	13	9	7	11	8	9	9	7	8	8	6	7	7	8	6	7	5		
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	13	10	16	11	9	15	10	8	13	9	7	11	8	6		
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	14	12	16	13	11	16	12	10	16	10	8	15	9	7	13	7	6	11	6	8	10	9	7	9	8	6		
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19	15	19	19	10	18	14	11	14	13	10	12	11	8	11	10	8		
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8		
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	12	8	14	10	7	13	9	6	11	8	9	10	7	8		
			Exposed	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	8	14	11	8	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5		
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7		
			Exposed	14	14	12	14	14	11	14	14	10	14	12	9	14	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4		
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	15	13	17	13	11	17	11	9	16	9	8	14	8	7	13	7	6	11	6	8		
			Exposed	18	18	15	18	16	13	18	15	12	18	13	11	18	12	10	18	11	9	17	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5		
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	20	20	20	18	20	20	17	19	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6		
			Exposed	21	21	18	21	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	9	7	6	7	9	8	6	
80	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	8	9		
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	8	9		
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	14	11	9		
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	14	11	9		
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16		
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	16	14	16	16	13		
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	11	9	11	11	9	11	11	9	11	11	8		
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10		
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11		
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10		
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13		
			Exposed	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8		
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	8	12	10	7	12	9	6	11	8	9	10	7	8		
			Exposed	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	11	8	12	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5		
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	10	6	12	9	6	11	8	9	9	7	8	8	6	7		
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	6	6	7	5	8	6	4		
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	15	13	16	13	11	15	11	9	15	9	8	14	8	7	13	7	6	11	6	8		
			Exposed	16	16	15	16	16	13	16	15	12	16	13	11	16	12	10	16	11	9	16	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5		
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	18	18	15	17	16	13	16	16	10	14	13	10	12	11	8	10	9	7	9	8	6		
			Exposed	19	19	18	19	19	16	19	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	5			

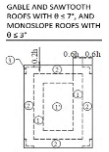
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

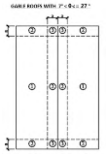
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

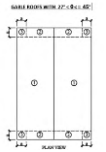
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

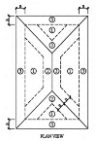












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

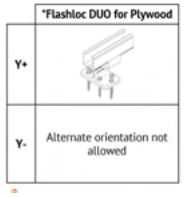
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	9
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	9	9	7	8
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	13	9	8	13	8	7	13	7	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	14	13	14	14	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	10	7	8	9	6	7	8	8	6
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	6	10	7	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	8	13	9	7	13	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	11	13	13	10	12	11	9	11	10	8
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	11	8	9	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	7	11	9	6	11	8	9	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	9	9	7	7	8	9	6	7	8	6	7	7	5	8	6	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	11	9	14	9	8	13	8	7	13	7	6	11	6	8
			Exposed	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10	14	11	9	14	10	8	14	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	15	15	15	13	15	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6
100	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	8	9	9	7	8
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	8	11	8	7	11	7	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	9	6	7	8	8	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	8	6	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	7	6	11	6	8	10	9	7	9	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	7	6	11	6	8	10	9	7	9	8	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	11	12	12	10	12	11	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	9	7	6	8
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	9	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	6	10	8	8	9	7	7	8	9	6	7	8	5	6	7	5
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	6	10	8	9	9	7	8	8	6	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	9	9	7	7	8	9	6	7	8	6	7	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	12	8	7	12	7	6	11	6	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	9	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	9	8	6

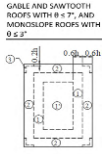
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

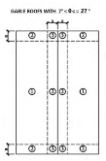
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

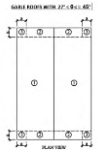
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

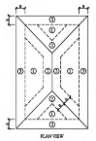












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

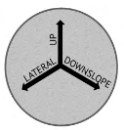
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

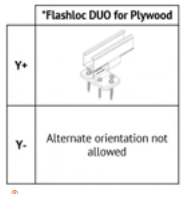
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	78	78	69	78	78	59	78	78	52	78	73	47	78	61	43	78	55	39	78	50	35	59	42	30	50	36	25	43	31	22	37	27	19	30	23	17	29	21	15
			Exposed	78	61	42	78	54	38	72	48	34	61	43	30	55	39	27	49	36	25	45	32	23	38	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	78	78	58	78	78	51	78	63	46	78	57	41	78	51	37	64	46	34	59	42	31	49	35	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	78	51	37	63	45	33	56	40	30	50	36	27	45	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	80	80	80	80	80	62	80	80	56	80	61	50	80	55	45	80	50	41	80	46	38	74	38	32	57	33	27	49	28	23	43	25	20	37	22	18	33	19	16
			Exposed	80	55	45	80	49	40	80	44	36	80	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	81	81	81	81	81	81	81	81	76	81	81	60	81	81	54	81	63	49	64	57	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	81	81	54	81	61	48	61	55	43	55	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	78	65	45	78	57	40	78	51	36	64	46	32	58	42	29	52	38	26	48	34	24	40	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	58	41	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	78	54	39	78	48	35	59	43	31	53	38	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	48	35	25	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	80	58	48	80	52	42	80	46	38	80	42	34	67	38	31	60	34	28	54	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	66	37	31	58	33	27	52	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	81	81	57	81	65	51	65	58	46	58	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	78	53	37	68	47	33	59	42	30	53	38	27	48	34	24	43	31	22	39	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	48	34	24	42	30	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	62	44	33	55	40	29	49	35	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	40	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	80	48	39	80	43	35	73	38	32	60	35	28	54	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	81	60	47	60	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
10	B	0-7	Interior	64	64	64	64	64	59	64	64	52	64	64	47	64	61	43	64	55	39	64	50	35	59	42	30	50	36	25	43	31	22	37	27	19	33	24	17	29	21	15
			Exposed	64	61	42	64	54	38	64	48	34	61	43	30	55	39	27	49	36	25	45	32	23	38	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	64	64	58	64	64	51	64	63	46	64	57	41	64	51	37	64	46	34	59	42	31	49	35	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	64	51	37	63	45	33	56	40	30	50	36	27	45	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	62	73	73	56	73	61	50	73	55	45	73	50	41	73	46	38	73	38	32	57	33	27	49	28	23	43	25	20	37	22	18	33	19	16
			Exposed	73	55	45	73	49	40	73	44	36	73	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	78	78	78	78	78	78	78	78	76	78	78	60	78	78	54	78	63	49	64	57	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	78	78	54	78	61	48	61	55	43	55	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	64	64	45	64	57	40	64	51	36	64	46	32	58	42	29	52	38	26	48	34	24	40	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	58	41	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	64	54	39	64	48	35	59	43	31	53	38	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	48	35	25	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	73	58	48	73	52	42	73	46	38	73	42	34	67	38	31	60	34	28	54	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	66	37	31	58	33	27	52	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	78	78	57	78	65	51	65	58	46	58	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	64	53	37	64	47	33	59	42	30	53	38	27	48	34	24	43	31	22	39	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	48	34	24	42	30	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	62	44	33	55	40	29	49	35	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	40	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	75	48	39	75	43	35	73	38	32	60	35	28	54	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	80	60	47	60	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
20	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	39	47	47	35	47	42	30	47	36	25	43	31	22	37	27	19	33	24	17	29	21	15
			Exposed	47	47	42	47	47	38	47	47	34	47	43	30	47	39	27	47	36	25	45	32	23	38	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	48	48	48	48	48	48	48	48	46	48	48	41	48	48	37	48	46	34	48	42	31	48	35	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	48	48	37	48	45	33	48	40	30	48	36	27	45	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	58	58	58	58	58	58	58	58	56	58	58	50	58	55	45	58	50	41	58	46	38	58	38	32	57	33	27	49	28	23	43	25	20	37	22	18	33	19	16
			Exposed	58	55	45	58	49	40	58	44	36	58	39	32	58	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	60	64	64	54	64	63	49	64	57	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	64	64	54	64	61	48	61	55	43	55	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	47	47	45	47	47	40	47	47	36	47	46	32	47	42	29	47	38	26	47	34	24	40	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	47	41	29	47	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	48	48	39	48	48	35	48	43	31	48	38	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	48	35	25	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	58	58	48	58	52	42	58	46	38	58	42	34	58	38	31	58	34	28	54	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	58	37	31	58	33	27	52	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	64	64	57	64	64	51	64	58	46	58	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	47	47	37	47	47	32	47	42	30	47	38	27	47	34	24	43	31	22	39	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	47	34	24	42	30	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	48	44	33	48	40	29	48	35	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	40	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	60	48	39	60	43	35	60	38	32	60	35	28	54	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	66	60	47	60	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

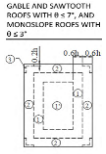
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

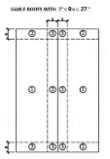
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

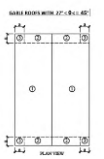
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

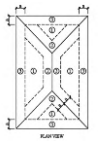












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

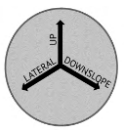
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

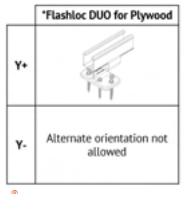
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	36	25	37	31	22	37	27	19	33	24	17	29	21	15
			Exposed	37	37	37	37	37	37	37	37	34	37	37	30	37	37	27	37	36	25	37	32	23	37	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	34	38	38	31	38	35	26	38	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	38	38	37	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	41	48	46	38	48	38	32	48	28	23	43	25	20	37	22	18	33	19	16			
			Exposed	48	48	45	48	48	40	48	44	36	48	39	32	48	36	29	48	32	27	48	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	45	54	48	38	46	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	54	54	54	54	54	48	54	54	43	54	49	39	50	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	29	37	37	26	37	37	34	24	37	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	37	37	29	37	37	26	37	33	23	37	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	38	38	38	38	38	35	38	38	31	38	38	28	38	35	26	38	32	23	38	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	38	35	25	38	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	48	48	48	48	48	42	48	46	38	48	42	34	48	38	31	48	34	28	48	31	26	46	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	48	37	31	48	33	27	48	30	25	47	27	22	42	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	54	54	54	54	54	51	54	54	46	54	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	33	37	37	30	37	37	27	37	34	24	37	31	22	37	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	37	34	24	37	30	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	38	38	33	38	38	29	38	35	26	38	32	23	38	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	38	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	50	48	39	50	43	35	50	38	32	50	35	28	50	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	50	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	57	57	47	57	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	25	35	31	22	35	27	19	33	24	17	29	21	15
			Exposed	35	35	35	35	35	35	35	35	34	35	35	30	35	35	27	35	35	25	35	32	23	35	27	19	32	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	35	26	35	30	22	35	26	19	31	23	17	28	20	15	24	18	13
			Exposed	35	35	35	35	35	33	35	35	30	35	35	27	35	33	24	35	30	22	35	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	32	41	33	27	41	28	20	41	25	20	37	22	18	33	19	16
			Exposed	41	41	41	41	41	40	41	41	36	41	39	32	41	36	29	41	32	27	41	30	24	41	25	21	37	21	18	32	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	45	41	32	40	35	28	35	31	24	30	27	22	27	24	19
			Exposed	47	47	47	47	47	47	47	47	43	47	47	39	47	45	35	45	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	35	26	35	34	24	35	29	20	34	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	35	35	29	35	35	26	35	33	23	35	30	21	35	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	35	35	35	35	35	35	35	35	31	35	35	28	35	35	26	35	32	23	35	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	35	35	25	35	31	23	35	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	~~9~~
		20-27	Interior	41	41	41	41	41	41	41	41	38	41	41	34	41	38	31	41	34	28	41	31	26	41	26	22	39	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	41	37	31	41	33	27	41	30	25	41	27	22	41	24	20	38	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	46	47	47	41	47	47	37	45	43	34	44	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	47	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	37	37	37	34	37	37	27	37	34	24	37	31	22	37	29	20	33	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	37	34	24	37	30	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	38	38	33	38	38	29	38	35	26	38	32	23	38	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	38	29	21	35	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	50	48	39	50	43	35	50	38	32	50	35	28	50	31	26	49	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	50	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	57	57	47	57	54	42	54	48	38	48	43	34	44	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
50	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	25	30	30	22	30	27	19	30	24	17	29	21	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	23	30	27	19	30	23	16	28	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	23	17	28	20	15	24	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	22	30	27	20	30	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	33	27	35	28	23	35	25	20	34	22	18	33	19	16
			Exposed	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	32	27	35	30	24	35	25	21	35	21	17	28	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	40	40	32	38	35	28	35	31	24	30	27	22	27	24	19
			Exposed	41	41	41	41	41	41	41	41	41	41	41	39	41	41	35	41	41	32	41	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	29	20	30	25	17	29	21	15	26	19	13	23	16	12	20	14	10
			Exposed	30	30	29	30	30	26	30	30	23	30	30	21	30	27	19	30	24	17	30	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	29	21	30	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	30	30	25	30	30	23	30	28	20	30	25	18	30	23	17	28	21	15	26	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	~~9~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	34	28	35	31	26	35	26	22	35	23	19	33	19	16	29	17	14	26	15	12	23	13	11
			Exposed	35	35	31	35	33	27	35	30	25	35	27	22	35	24	20	35	22	18	35	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	40	40	34	39	39	31	37	33	26	32	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	41	41	37	41	41	33	41	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	32	32	32	32	32	32	32	32	32	32	32	27	32	32	24	32	31	22	32	29	20	32	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	32	32	24	32	30	21	32	27	19	32	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	33	33	33	33	33	33	33	33	26	33	32	23	33	29	21	33	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	33	29	21	33	26	19	32	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	38	38	38	38	38	35	38	38	32	38	35	28	38	31	26	38	28	23	38	26	21	37	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	38	31	26	38	28	23	38	25	20	38	22	18	35	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	44	44	44	44	44	42	44	44	38	43	43	34	41	39	31	40	36	28	36	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

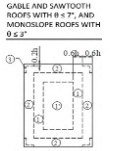
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

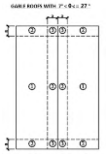
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

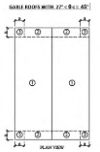
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

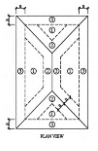












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

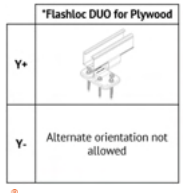
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	24	17	25	21	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	16	25	20	14	24	18	12	21	15	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	23	17	25	20	15	24	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	28	23	31	25	20	30	22	18	29	19	16			
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	30	24	31	25	21	31	21	18	31	18	15	28	16	13	24	14	12	21	13	10
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	32	34	34	28	33	31	24	30	27	22	27	24	19
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	17	25	21	15	25	19	13	23	16	12	20	14	10
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	25	22	16	25	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	18	25	21	15	25	18	13	22	16	12
			Exposed	25	25	25	25	25	25	23	25	25	20	25	25	18	25	23	17	25	21	15	25	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	31	26	31	28	22	31	23	19	30	19	16	28	17	14	26	15	12	23	13	11
			Exposed	31	31	31	31	31	27	31	30	25	31	27	22	31	24	20	31	22	18	31	31	20	17	29	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	34	35	35	31	33	33	26	31	28	22	27	24	19	24	21	17	21	19	15	19	17	13
			Exposed	37	37	37	37	37	33	37	37	30	37	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	28	20	28	24	17	28	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	28	28	24	28	28	21	28	27	19	28	25	17	28	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	19	28	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	28	28	21	28	26	19	28	23	17	28	21	15	26	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	28	33	31	26	33	28	23	33	26	21	33	22	18	31	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	33	31	26	33	28	23	33	25	20	33	22	18	33	20	17	32	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	39	39	39	39	39	39	39	39	38	38	38	34	37	37	31	36	36	28	35	33	26	31	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	39	39	31	39	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
70	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	21	15
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	20	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	20	15
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	25	20	27	22	18
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	21	18	27	18	15	27	16	13	24	14	12	21	13	10
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	28	30	30	24	28	27	22	27	24	19
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	15	22	19	13	22	16	12	20	14	10
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	22	16	22	19	13	22	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	21	15	22	18	13	22	16	12
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	21	15	22	22	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	24	20	27	22	18	27	27	20	17	27	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	33	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	17	24	21	14	24	18	12	21	15	11	19	14	15	17	12	13
			Exposed	24	24	24	24	24	21	24	24	19	24	24	17	24	22	16	24	20	14	24	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	18	24	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	24	24	21	24	24	19	24	23	17	24	21	15	24	19	14	23	17	13	21	16	11	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	28	23	30	26	21	29	22	18	28	19	15	27	16	13	24	14	12	21	12	10	19	11	14
			Exposed	30	30	26	30	28	23	30	25	20	30	22	18	30	20	17	30	18	15	29	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	36	36	36	36	36	36	36	36	36	35	35	34	34	34	31	33	33	28	32	32	26	30	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	36	36	31	36	35	27	35	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	22	18
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	21	18	24	18	15	24	16	13	24	14	12	21	13	10
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	24	26	26	22	25	24	19
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	25	29	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13	19	16	12	19	14	10
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	19	13	19	16	11	19	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	18	13	19	16	12	19	14	10	17	12	14
			Exposed	19	19	19	19	19	19	19	19	19	18	19	19	17	19	19	15	19	19	14	19	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	~~9~~		
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	19	16	23	17	14	23	15	12	22	13	11
			Exposed	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	22	18	24	20	17	24	17	14	24	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	26	27	27	22	25	24	19	24	21	17	21	19	15	19	17	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	14	21	18	12	21	15	11	19	14	15	17	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	19	13	21	16	11	18	13	14	16	12	12	14	10	11	12	13	~~10~~	11	12	~~8~~
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	20	15	21	17	13	21	15	11	18	13	15	16	11	13	14	10	11
			Exposed	21	21	21	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	19	13	21	18	13	15	15	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	10	~~7~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	26	19	15	25	16	13	24	14	12	21	12	10	19	11	14
			Exposed	26	26	26	26	26	23	26	25	20	26	22	18	26	20	17	26	18	15	26	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	~~9~~
		27-45	Interior	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	30	28	30	30	26	28	27	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	33	33	31	33	33	27	33	31	25	31	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

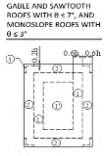
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

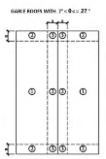
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

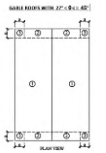
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

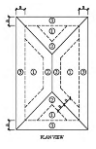












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

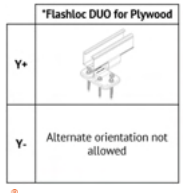
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	11	17	14	15
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	12	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	18	15	21	16	13	21	14	12	21	13	10
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	24	24	24	22	24	24	19
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	14	10
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	16	11	17	14	15	17	12	13	15	11	11	13	14	10
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	12	17	14	10	17	12	9	14	10	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	16	12	17	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	19	16	21	21	17	14	21	15	12	20	13	11		
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	17	21	17	14	21	15	12	21	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	22	24	24	19	23	21	17	21	19	15	19	17	13
			Exposed	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	14	19	18	12	19	15	11	19	14	15	17	12	13
			Exposed	19	19	19	19	19	19	19	19	19	17	19	16	19	19	14	19	17	13	19	16	11	18	13	14	16	12	12	14	10	11	12	13	10	11	8	14	10	7		
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	17	13	19	15	11	18	13	15	16	11	13	14	10	11
			Exposed	19	19	19	19	19	19	19	19	17	19	15	19	19	14	19	17	13	19	16	11	18	13	15	15	11	13	13	15	11	12	13	10	10	11	8	14	10	7		
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	22	18	24	19	15	23	16	13	22	14	12	21	12	10	19	11	14
			Exposed	24	24	24	24	24	24	23	24	24	20	24	22	18	24	20	17	24	18	15	24	17	14	24	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	28	28	26	26	26	22	25	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	30	30	30	30	30	27	30	30	25	30	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	12	15	15	11	15	14	15			
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	12	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	19	14	12	19	13	10
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	22	22	22	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15	15	12	13	15	11	11	13	14	10
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	12	16	14	10	16	12	13	14	10	11	12	14	9
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	12	16	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	17	14	19	15	12	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	19	15	12	19	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	22	22	22	19	21	21	17	20	19	15	19	17	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	12	17	17	14	17	17	12	17	15	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	11	17	13	14	16	12	12	14	10	11	12	13	10	11	12	8
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	11	13	14	10	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	16	11	17	13	15	15	11	13	13	15	11	12	13	10	11	8	14	10	7		
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	19	15	21	16	13	21	14	12	20	12	10	19	11	14
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	17	21	18	15	21	17	14	21	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	17	16	12	15	14	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

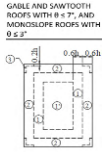
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

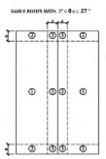
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

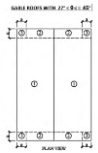
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

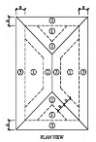












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

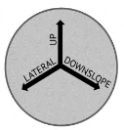
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

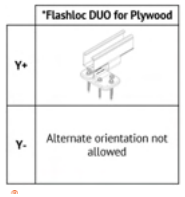
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	33	39	39	29	39	39	26	39	34	23	39	30	21	39	27	19	35	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	39	30	21	39	27	19	33	24	17	30	21	15	27	19	14	24	18	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	39	39	29	39	35	25	39	31	23	39	28	20	35	25	18	32	23	17	29	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	40	40	35	40	40	31	40	34	28	40	30	25	40	27	22	40	25	20	40	23	19	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	40	27	22	40	24	20	40	22	18	34	19	16	31	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	41	41	41	41	41	38	41	41	33	41	40	30	41	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	41	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	39	32	22	39	28	20	36	25	18	32	23	16	29	21	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	8	9	10	7	8
			Exposed	29	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	39	27	19	33	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	40	29	24	40	26	21	40	23	19	37	21	17	33	19	15	30	17	14	27	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	19	15	29	16	14	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	41	37	28	37	32	25	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	38	26	18	33	23	16	29	21	15	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	7	5	6	7	5	8	6	4	5	7	5	3
		7-20	Interior	31	22	16	27	20	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	7	5	9	6	5	8	5	4	7	5	3	6	5	3
		20-27	Interior	40	24	20	38	21	17	33	19	16	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	30	23	30	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	5
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	7	6	4	6	5	3	5	4	3
10	B	0-7	Interior	32	32	32	32	32	29	32	32	26	32	32	23	32	30	21	32	27	19	32	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	32	30	21	32	27	19	32	24	17	30	21	15	27	19	14	24	18	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	32	32	29	32	32	25	32	31	23	32	28	20	32	25	18	32	23	17	29	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	32	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	37	37	35	37	37	31	37	34	28	37	30	25	37	27	22	37	25	20	37	23	19	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	37	27	22	37	24	20	37	22	18	34	19	16	31	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	39	39	39	39	39	38	39	39	33	39	39	30	39	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	39	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	32	32	22	32	28	20	32	25	18	32	23	16	29	21	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	9	10	7	8
			Exposed	29	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	32	27	19	32	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	37	29	24	37	26	21	37	23	19	37	21	17	33	19	15	30	17	14	27	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	32	19	15	29	16	14	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	39	37	28	37	32	25	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	32	26	18	32	23	16	29	21	15	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	7	5	6	7	5	8	6	4	5	7	5	3
		7-20	Interior	31	22	16	27	20	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	38	24	20	38	21	17	33	19	16	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	30	23	30	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	5
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	7	6	4	6	5	3	5	4	3
20	B	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	18	12	21	15	11	18	13	9	16	12	8	14	10	7	
			Exposed	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	18	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	24	24	24	24	24	24	24	24	23	24	24	20	24	24	18	24	23	17	24	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	24	24	18	24	22	16	24	20	15	24	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	27	22	29	25	20	29	23	19	29	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	29	27	22	29	24	20	29	22	18	29	19	16	29	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	32	32	27	32	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	23	23	22	23	23	20	23	23	18	23	23	16	23	21	14	23	19	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	23	20	14	23	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	24	24	19	24	24	17	24	21	15	24	19	14	24	17	13	22	16	11	20	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	29	29	24	29	26	21	29	23	19	29	21	17	29	19	15	29	17	14	27	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	29	19	15	29	16	14	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	32	32	28	32	32	25	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	7	5	6	7	5	8	6	4	5	7	5	3
		7-20	Interior	24	22	16	24	20	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	30	24	20	30	21	17	30	19	16	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	30	23	30	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	5
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	7	6	4	6	5	3	5	4	3

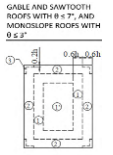
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

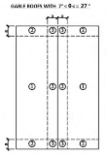
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

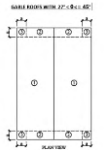
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

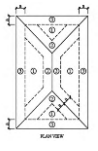












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

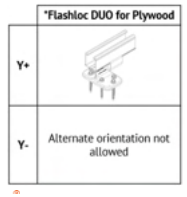
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	15	11	18	13	9	16	12	8	14	10	7			
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	18	12	19	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	19	15	19	18	13	19	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	19	19	18	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	19	24	19	16	24	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	24	24	22	24	24	20	24	22	18	24	19	16	24	18	14	24	16	13	24	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	22	18	20	17	14	20	13	10	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	27	27	27	27	27	24	27	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	19	13	19	17	12	19	14	10	17	12	9	14	10	7	13	9	6	11	8	8	10	7	8
			Exposed	19	19	14	19	18	13	19	16	11	19	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	19	19	19	19	19	17	19	19	15	19	19	14	19	17	13	19	16	11	19	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	19	17	12	19	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	24	24	24	24	24	21	24	23	19	24	21	17	24	19	15	24	17	14	24	15	13	23	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	24	19	15	24	16	14	24	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	27	27	27	27	27	25	27	27	23	27	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	19	19	18	19	19	16	19	19	15	19	19	13	19	17	12	19	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	19	17	12	19	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	14	19	17	13	19	16	11	19	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	19	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	25	24	20	25	21	17	25	19	16	25	17	14	25	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	25	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	28	28	23	28	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	6
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
40	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	15	11	17	13	9	16	12	8	14	10	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	13	9	14	10	7	12	9	6	11	8	6	10	7	7	9	7	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	9	15	11	8	14	10	7	12	9	6
			Exposed	17	17	17	17	17	16	17	17	15	17	17	13	17	16	12	17	15	11	17	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	16	20	16	13	20	14	11	20	12	10	18	11	9	16	9	8
			Exposed	20	20	20	20	20	20	20	20	18	20	19	16	20	18	14	20	16	13	20	15	12	20	12	10	18	10	9	16	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	22	20	16	20	17	14	17	15	12	15	13	11	13	12	9
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	14	10	17	12	8	14	10	7	13	9	6	11	8	8	10	7	8
			Exposed	17	17	14	17	17	13	17	16	11	17	15	10	17	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	11	17	14	10	17	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	17	17	12	17	15	11	17	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	20	17	14	20	15	13	20	13	11	19	11	9	17	9	8	14	8	7	13	7	6	11	6	8
			Exposed	20	19	15	20	16	14	20	15	12	20	13	11	20	12	10	19	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	23	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	18	18	18	18	18	16	18	18	15	18	18	13	18	17	12	18	15	11	18	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	18	17	12	18	15	10	18	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	14	19	17	13	19	16	11	19	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	19	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	21	21	20	21	21	17	21	19	16	21	17	14	21	15	13	21	14	11	21	13	10	19	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	21	15	13	21	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	6
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
50	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	11	15	13	9	15	12	8	14	10	7			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	15	13	15	15	10	15	11	8	13	10	7	11	8	6	10	7	8	9	6	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13	17	14	11	17	12	10	17	11	9	16	9	8
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	15	12	17	17	10	17	10	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	16	19	17	14	17	15	12	15	13	11	13	12	9
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	13	9	6	11	8	9	10	7	8			
			Exposed	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	9	14	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	15	15	12	15	15	10	15	12	9	15	15	9	15	12	8	15	11	8	14	10	7	13	9	7	11	8	9	9	7	7	8	5	6	7	5	8	6	4	
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	13	11	17	11	9	16	9	8	14	8	7	13	7	6	11	6	8			
			Exposed	17	17	15	17	16	14	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	20	20	17	19	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	21	21	18	21	21	16	21	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	19	19	19	19	19	17	19	19	16	19	17	14	19	15	13	19	14	11	19	13	10	18	11	9	16	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	19	15	13	19	14	11	19	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	22	22	22	22	22	21	22	22	19	21	21	17	21	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	6
			Exposed	22	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5

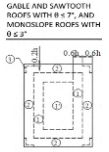
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

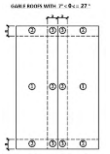
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

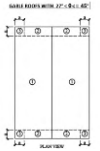
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

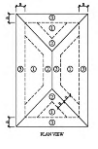












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

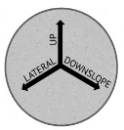
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

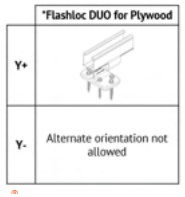
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	8	12	10	7
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	7	12	9	6	10	7	8	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	9	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	9	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10	15	11	9	15	9	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	13	15	15	12	15	12	10	15	10	9	15	9	7	14	8	6	12	7	9	11	6	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	14	16	15	12	15	13	10	13	11	9	11	10	8
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6			
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	10	12	12	9	12	10	7	12	9	6	11	8	8
			Exposed	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	11	8	12	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	10	7	12	9	6	11	8	9	9	7	8	8	6	7
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	13	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	13	15	13	11	15	11	9	15	9	8	14	8	7	13	7	6	11	6	8
			Exposed	15	15	15	15	15	14	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	15	16	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	6	8	7	6			
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	14	14	12	14	14	10	14	13	9	14	12	8	14	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	8	6	7	7	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	11	8	6	10	8	9	9	6	7	7	8	6	7	5	9	6	5	8	5	4	7	5	3	
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13	17	14	11	17	13	10	16	11	9	15	9	7	14	8	6	12	7	9	10	6	8	9	8	7
			Exposed	17	15	13	17	14	11	17	12	10	17	11	9	17	10	8	16	9	7	14	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	19	19	17	19	19	15	18	18	14	17	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	20	19	15	19	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
70	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	11	11	11	8	11	10	7	11	9	6	10	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	10	7	11	9	6	10	7	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	12	9	13	9	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	9	13	9	7	13	8	6	12	9	7	11	8	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	15	15	12	14	13	11	13	12	9
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7	11	9	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	9	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	13	8	7	12	7	6	11	6	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	10	7	8	9	7	7	8	6	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	11	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	11	12	12	12	12	10	12	12	9	12	12	10	12	12	10	12	12	10	12	12	8	12	10	7	12	9	6	11	8	7
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	15	15	15	15	15	15	15	15	15	14	15	15	13	15	11	14	15	11	13	13	10	15	11	9	14	9	7	13	8	6	12	7	9	10	6	8	9	8	7
			Exposed	15	15	13	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	9	9	8	6	8	7	6	7	6	5	7	6	5	6	5	4
		27-45	Interior	18	18	18	18	18	18	18	18	18	17	17	17	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	6	7	6	5
			Exposed	18	18	15	18	17	13	17	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	8	6	7	7	5	6	5	4	
80	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	7	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	9	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	9	12	9	7	12	8	6	12	7	9	11	6	8
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	12	13	13	11	12	12	9	
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	9	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	8	6	9	9	6	6	7	8	5	6	7	5		
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9	9	7	8	8	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	8	5	6	7	8	5	6	7	5		
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	9	8	12	8	7	11	7	6	11	6	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	11	14	14	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	7	8	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	10	7	11	8	6	10	7	8	9	6	7	8	6	7	8	6	7
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	10	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	11	13	13	10	13	11	9	13	9	7	12	8	6	12	7	9	10	6	8	9	8	7
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	10	8	12	7	9	12	8	6	8	7	6	7	6	5	7	6	5	7	6	5	6	5	4
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	13	14	14	11	13	12	9	12	9	7	10	9	7	8	8	6	8	7	6	8	7	8
			Exposed	16	16	15	16	16	13	16	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	8	7	8

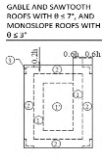
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

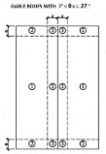
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

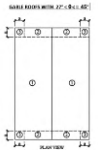
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

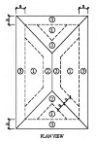












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

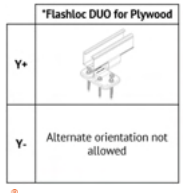
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	9	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	10	10	9	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	9	10	6	8
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	12	12	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	11	10	8	10	9	7	9	8	6	9	7	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	8	8	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	9	8	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	9	10	6	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	7	8	9	7	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	8	9	6	7	8	9	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	8	9	6	7	8	8	6	7	7	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	8	9	9	6	7	7	8	6	6	7	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	9	7	11	8	6	11	7	9	10	6	8	9	8	7
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	13	13	13	11	12	12	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5
100	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	8	8	6	7	8	9	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	9	9	6	8
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	7	7	7	8
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	7	6	6	7	8	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	9	8	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	11	10	8	10	9	7	9	8	6	8	7	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	8	8	8	8	6	8	7	8	8	6	7	8	9	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	8	8	8	6	8	8	7	8	8	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	9	8	6	7	7	8	6	7	8	5	9	6	5	8	5	4	7	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	9	9	6	8	9	8	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	7	9	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	11	11	9	11	10	8	10	9	7	8	8	6	8	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	9	7	8	8	6	7	7	5

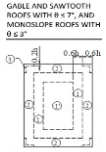
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

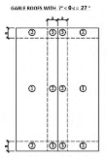
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

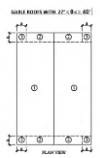
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

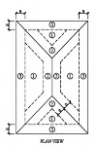












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

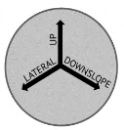
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

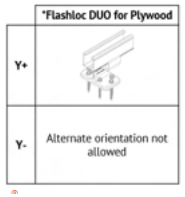
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	76	76	65	76	76	57	76	76	51	76	69	46	76	60	42	76	54	38	76	49	34	58	41	29	49	35	25	42	30	21	37	26	19	32	23	16	28	21	15
			Exposed	76	60	41	76	53	37	68	47	33	59	42	30	53	38	27	48	35	24	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	77	77	57	77	77	50	77	62	45	77	55	40	77	50	36	63	45	33	57	41	30	48	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	77	50	36	61	44	32	55	39	29	49	36	26	44	32	24	40	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	78	78	78	78	78	61	78	78	55	78	60	49	78	54	44	78	49	40	78	45	37	67	38	31	56	32	26	48	28	23	42	24	20	37	21	17	32	19	15
			Exposed	78	54	44	78	48	39	78	43	35	75	38	32	61	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	79	79	79	79	79	79	79	79	65	79	79	59	79	77	53	79	61	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	79	75	53	79	60	47	60	53	42	54	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	76	63	44	76	56	39	76	50	35	63	45	31	57	41	28	51	37	26	47	34	24	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	56	40	28	50	36	25	45	32	23	40	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	77	53	38	65	47	34	58	42	31	52	38	28	47	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	47	34	25	42	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	78	57	47	78	51	42	78	45	37	78	41	33	64	37	30	58	33	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	64	37	30	57	33	27	51	29	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	79	79	56	79	63	50	64	57	45	57	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	76	52	36	65	46	32	58	41	29	52	37	26	47	34	24	42	31	21	39	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	46	33	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	60	43	32	54	39	28	48	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	78	47	39	78	42	34	66	37	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	79	59	46	59	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
10	B	0-7	Interior	62	62	62	62	62	57	62	62	51	62	62	46	62	60	42	62	54	38	62	49	34	58	41	29	49	35	25	42	30	21	37	26	19	32	23	16	28	21	15
			Exposed	62	60	41	62	53	37	62	47	33	59	42	30	53	38	27	48	35	24	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	63	63	57	63	63	50	63	62	45	63	55	40	63	50	36	63	45	33	57	41	30	48	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	63	50	36	61	44	32	55	39	29	49	36	26	44	32	24	40	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	71	71	71	71	71	61	71	71	55	71	60	49	71	54	44	71	49	40	71	45	37	67	38	31	56	32	26	48	28	23	42	24	20	37	21	17	32	19	15
			Exposed	71	54	44	71	48	39	71	43	35	71	38	32	61	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	77	77	77	77	77	77	77	77	65	77	77	59	77	77	53	77	61	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	77	75	53	77	60	47	60	53	42	54	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	62	62	44	62	56	39	62	50	35	62	45	31	57	41	28	51	37	26	47	34	24	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	56	40	28	50	36	25	45	32	23	40	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	63	53	38	63	47	34	58	42	31	52	38	28	47	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	47	34	25	42	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	71	57	47	71	51	42	71	45	37	71	41	33	64	37	30	58	33	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	64	37	30	57	33	27	51	29	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	77	77	56	77	63	50	64	57	45	57	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	62	52	36	62	46	32	58	41	29	52	37	26	47	34	24	42	31	21	39	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	46	33	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	60	43	32	54	39	28	48	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	73	47	39	73	42	34	66	37	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	78	59	46	59	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
20	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	38	46	46	34	46	41	29	46	35	25	42	30	21	37	26	19	32	23	16	28	21	15
			Exposed	46	46	41	46	46	37	46	46	33	46	42	30	46	38	27	46	35	24	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	46	46	46	46	46	46	46	46	45	46	46	40	46	46	36	46	45	33	46	41	30	46	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	46	46	36	46	44	32	46	39	29	46	36	26	44	32	24	40	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	56	56	56	56	56	56	56	56	55	56	56	49	56	54	44	56	49	40	56	45	37	56	38	31	56	32	26	48	28	23	42	24	20	37	21	17	32	19	15
			Exposed	56	54	44	56	48	39	56	43	35	56	38	32	56	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	59	63	63	53	63	61	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	63	63	53	63	60	47	60	53	42	54	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	46	46	44	46	46	39	46	46	35	46	45	31	46	41	28	46	37	26	46	34	24	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	46	40	28	46	36	25	45	32	23	40	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	46	46	38	46	46	34	46	42	31	46	38	28	46	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	46	34	25	42	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	56	56	47	56	51	42	56	45	37	56	41	33	56	37	30	56	33	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	56	37	30	56	33	27	51	29	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	63	63	56	63	63	50	63	57	45	57	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	46	46	36	46	46	32	46	41	29	46	37	26	46	34	24	42	31	21	39	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	46	33	23	41	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	46	43	32	46	39	28	46	35	25	43	31	23	39	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	59	47	39	59	42	34	59	37	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	53	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	65	59	46	59	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11

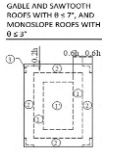
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

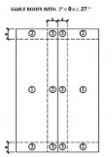
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

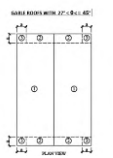
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

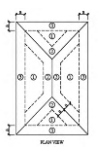












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

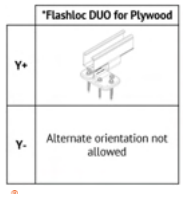
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	30	21	37	26	19	32	23	16	28	21	15
			Exposed	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	35	24	37	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	37	35	26	37	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	37	37	36	37	37	32	37	37	29	37	36	26	37	32	24	37	29	22	37	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	45	37	47	38	31	47	32	26	47	28	23	42	24	20	37	21	17	32	19	15
			Exposed	47	47	44	47	47	39	47	43	35	47	38	32	47	35	29	47	32	26	47	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	53	53	53	53	53	47	53	53	42	53	48	38	49	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	31	37	37	37	37	28	37	37	26	37	34	24	37	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	37	37	28	37	36	25	37	32	23	37	29	20	36	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	37	37	37	37	37	34	37	37	31	37	37	28	37	34	25	37	31	23	37	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	37	34	25	37	30	22	37	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	47	47	47	47	47	42	47	45	37	47	41	33	47	37	30	47	33	28	47	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	47	47	30	47	47	33	47	29	24	46	26	22	41	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	53	53	53	53	53	50	53	53	45	53	51	40	52	46	36	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	37	37	36	37	37	32	37	37	29	37	37	26	37	34	24	37	31	21	37	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	37	33	23	37	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	37	37	32	37	37	28	37	35	25	37	31	23	37	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	37	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	49	47	39	49	42	34	49	37	31	49	34	28	49	31	25	48	28	23	44	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	49	30	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	55	55	46	55	52	41	53	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
40	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	29	34	34	25	34	30	21	34	26	19	32	23	16	28	21	15
			Exposed	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	34	24	34	32	22	34	27	19	32	23	16	27	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	34	26	34	30	22	34	26	19	31	22	16	27	20	14	24	17	13
			Exposed	34	34	34	34	34	32	34	34	29	34	34	26	34	32	24	34	29	22	34	27	20	31	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	38	31	40	32	26	40	28	23	40	24	20	37	21	17	32	19	15
			Exposed	40	40	40	40	40	39	40	40	35	40	38	32	40	35	29	40	32	26	40	29	24	40	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37	44	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	46	46	46	46	46	46	46	46	42	46	46	38	46	44	34	44	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	31	34	34	28	34	34	26	34	34	24	34	28	20	33	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	34	34	28	34	34	25	34	32	23	34	29	20	34	26	18	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	34	25	34	31	23	34	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	34	34	25	34	30	22	34	27	20	34	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	40	40	40	40	40	40	40	40	37	40	40	33	40	37	30	40	33	28	40	31	25	40	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	40	37	30	40	33	27	40	29	24	40	26	22	40	24	20	37	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	46	46	46	46	46	46	46	46	45	46	46	40	46	46	36	44	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	46	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	36	36	36	36	36	32	36	36	29	36	36	26	36	34	24	36	31	21	36	28	20	32	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	36	33	23	36	30	21	36	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	37	37	32	37	37	28	37	35	25	37	31	23	37	28	21	35	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	37	28	21	35	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	42	42	39	42	42	34	42	37	31	42	34	28	42	31	25	42	28	23	42	25	21	37	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	42	30	25	42	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	48	48	46	48	48	41	48	47	37	47	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
50	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	21	29	26	19	29	23	16	28	21	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	29	22	29	27	19	29	23	16	27	20	14	24	17	12	21	15	11	18	13	14	16	11	13
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	22	16	27	20	14	24	17	13
			Exposed	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	29	22	30	27	20	30	23	17	26	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	32	26	34	28	23	34	24	20	33	21	17	32	19	15
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	32	26	34	29	24	34	29	24	34	24	20	34	24	17	31	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	39	39	32	37	35	27	34	30	24	30	27	21	26	24	19
			Exposed	40	40	40	40	40	40	40	40	40	40	40	38	40	40	34	40	40	31	40	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	26	29	29	24	29	28	20	29	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	29	29	28	29	29	25	29	29	23	29	29	20	29	26	18	29	24	17	29	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	28	30	30	25	30	30	23	30	28	21	30	24	18	28	20	15	24	18	13	21	15	11	19	13	15	16	12	13	
			Exposed	30	30	25	30	30	22	30	27	20	30	24	18	30	22	16	28	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	33	28	34	31	25	34	26	21	34	22	18	32	19	16	29	17	14	25	15	12	22	13	11
			Exposed	34	34	30	34	33	27	34	29	24	34	26	22	34	24	20	34	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	39	39	33	38	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	40	40	36	40	40	32	40	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	31	31	31	31	31	31	31	31	29	31	31	26	31	31	24	31	31	21	31	28	20	31	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	31	31	23	31	30	21	31	27	19	31	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	32	32	32	32	32	28	32	32	25	32	31	23	32	28	21	32	26	19	32	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	32	28	21	32	25	18	31	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	37	37	37	37	37	37	37	37	31	37	34	28	37	31	25	37	28	23	37	25	21	36	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	37	30	25	37	27	22	37	24	20	37	22	18	34	20	16	31	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	43	43	43	43	43	43	43	43	37	42	42	33	40	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11

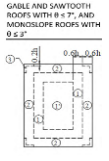
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

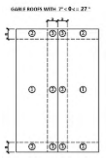
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

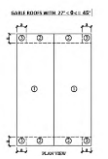
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

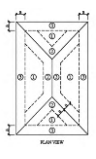












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

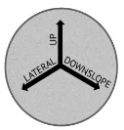
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

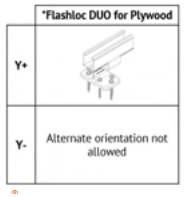
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	23	16	25	21	15			
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	25	25	25	22	25	25	19	25	23	16	25	20	14	24	17	12	21	15	11	18	13	14
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	16	25	20	14	24	17	13		
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	19	14	23	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	23	30	30	24	20	30	26	19	29	19	15		
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	29	24	30	24	20	30	21	17	30	18	15	27	16	13	24	14	11	21	12	15
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	32	33	33	27	32	30	24	30	27	21	26	24	19		
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	24	17	25	21	15	25	18	13	22	16	11	20	14	15
			Exposed	25	25	25	25	25	25	25	25	23	25	25	20	25	25	18	25	24	17	25	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	24	18	25	20	15	24	18	13	21	15	11	19	13	15	16	12	13
			Exposed	25	25	25	25	25	22	25	25	20	25	24	18	25	22	16	25	20	15	25	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	25	30	26	21	30	22	18	29	19	16	28	17	14	25	15	12	22	13	11
			Exposed	30	30	30	30	30	27	30	29	24	30	26	22	30	24	20	30	22	18	30	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	33	34	34	30	33	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	36	36	36	36	36	32	36	36	29	36	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	24	17	27	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	27	27	23	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	26	19	28	23	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	28	28	21	28	25	18	28	22	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	33	33	33	33	33	33	33	33	31	33	33	28	33	31	25	33	28	23	33	25	21	32	21	18	31	18	15	27	16	13	24	14	11	21	12	15	18	11	14
			Exposed	33	30	25	33	27	22	33	24	20	33	22	18	33	30	21	30	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	37	38	38	33	36	36	30	35	35	28	34	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	38	38	30	38	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	21	15		
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	20	14	21	17	12	21	15	11	18	13	14
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	20	14
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	17	22	19	14	22	17	12	20	14	11	18	13	14	16	11	13
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	23	27	24	20	27	21	17	26	19	15
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	24	20	27	21	17	27	18	15	27	16	13	24	14	11	21	12	15	18	11	14
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	30	30	27	29	29	24	28	27	21	26	24	19
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	29	33	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	13	21	16	11	20	14	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	20	15	22	18	13	21	15	11	19	13	15	16	12	13
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	20	15	22	18	14	21	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	22	18	26	19	16	25	17	14	24	15	12	22	13	11
			Exposed	27	27	27	27	27	24	27	26	22	27	24	20	27	22	18	27	20	16	27	17	14	25	14	12	21	12	10	19	11	14	16	14	12	14	13	11			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	30	30	30	26	28	28	22	27	24	19	23	21	17	21	18	15	18	16	13			
			Exposed	33	33	33	33	33	32	33	33	29	33	33	26	33	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	20	23	23	17	23	20	14	23	17	12	21	15	11	18	13	14	16	12	13	14	16	12
			Exposed	23	23	23	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	23	17	24	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	15	11
			Exposed	24	24	21	24	24	18	24	22	17	24	20	15	24	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	28	29	25	29	28	23	29	25	21	29	21	18	28	18	15	27	16	13	24	14	11	21	12	15	18	11	14			
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	35	35	35	35	35	35	35	35	34	34	33	33	33	33	30	32	32	28	31	31	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	35	35	30	35	34	27	34	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	14
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	14
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	17
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	27	27	27	24	26	26	21
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	18	13	19	16	11	19	14	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	19	15	19	18	13	19	16	11	19	14	15	16	12	13	14	16	11	19	14	10	13	14	10
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	18	13	19	15	11	19	13	15	16	12	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	19	18	14	19	15	11	18	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	23	19	16	23	17	14	22	15	12	21	13	11
			Exposed	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	22	18	23	20	16	23	17	14	23	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	26	26	26	22	25	24	19	23	21	17	21	18	15	18	16	13
			Exposed	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	29	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	20	14	21	17	12	21	15	11	18	13	14	16	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	20	14	21	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	19	13	21	15	11	18	13	14	15	11	13	14	15	11
			Exposed	21	21	21	21	21	18	21	21	17	21	20	15	21	18	14	21	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	25	21	26	21	18	25	18	15	24	16	13	23	14	11	21	12	15	18	11	14
			Exposed	26	26	25	26	26	22	26	24	20	26	22	18	26	20	16	26	18	15	26	17	14	24	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	32	32	32	32	32	32	32	32	32	31	31	31	31	31	30	30	30	28	29	29	25	27	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	32	32	30	32	32	27	32	30	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11

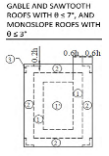
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

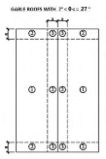
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

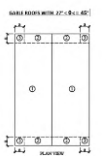
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

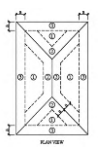












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

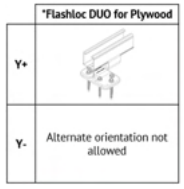
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	11	17	13	14
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	14	11	17	13	14	16	11	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	19	15			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	18	15	21	16	13	21	14	11	21	12	15
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	24	24	24	21	23	23	19			
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	15	16	12	13	14	16	11	13	14	10
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	12	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	14	17	15	11	17	13	15	16	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	18	21	19	16	21	17	14	20	15	12	20	13	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	17	14	21	14	12	21	12	10	19	11	14	16	14	12	14	13	11
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	21	17	21	18	15	18	16	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	17	12	18	15	11	18	13	14	16	12	13
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	15	11	18	13	14	16	11	12	14	15	11	12	13	9	16	12	8			
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	17	12	19	15	11	18	13	14	15	11	13	14	15	11
			Exposed	19	19	19	19	19	18	19	19	17	19	19	15	19	18	14	19	17	12	19	15	11	18	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	21	18	23	18	15	22	16	13	22	14	11	21	12	15	18	11	14
			Exposed	23	23	23	23	23	22	23	23	20	23	22	18	23	20	16	23	18	15	23	18	14	23	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	27	25	26	26	21	24	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	13	14
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	13	14	15	11	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	15	19	16	13	19	14	11	19	12	15
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	21	21	21	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15	15	12	13	14	16	11	13	14	10
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	15	15	15	11	15	15	13	15	15	12
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	11	15	13	15	15	11	13	14	15	11	12	13	10	11	12	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	16	19	17	14	19	15	12	18	13	11
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	17	14	19	14	12	19	12	10	19	11	14	16	14	12	14	13	11			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	22	22	22	22	22	19	21	21	17	20	18	15	18	16	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13			
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	12	17	15	11	17	13	14	16	12	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	13	14	16	11	12	14	15	11	12	13	9	16	12	8
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	15	11	17	13	14	15	11	13	14	15	11
			Exposed	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	15	11	17	13	14	15	11	12	13	14	11	11	13	9	15	11	8	14	10	7		
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	16	21	16	13	20	14	11	20	12	15	18	11	14
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	17	14	21	14	11	20	12	15	18	10	13	15	14	11	14	12	10	12	11	9			
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	21	23	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	26	26	26	26	26	26	26	26	24	26	26	22	26	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	16	13	11	14	11	15	12	15	13	11

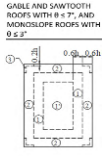
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

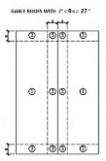
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

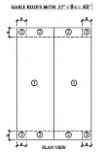
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

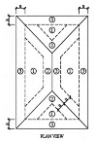












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

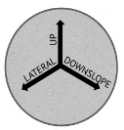
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

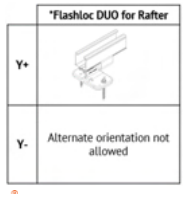
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	82	86	86	79	86	86	76	86	83	73	86	80	70	85	75	53	80	70	42	76	56	36	72	46	32	61	40	28	51	35	25			
			Exposed	86	86	76	86	82	73	86	79	65	86	76	55	83	73	47	80	68	42	77	60	38	72	47	32	59	39	27	48	34	24	40	29	21	35	26	18	31	23	25
		7-20	Interior	86	86	86	86	86	84	86	86	80	86	86	77	86	83	74	86	80	70	86	77	59	82	72	44	77	57	37	73	44	32	61	38	28	48	33	25	41	30	22
			Exposed	86	83	73	86	79	67	86	76	55	83	73	46	80	66	40	77	56	37	74	47	33	62	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	87	87	87	87	87	87	87	87	83	87	87	80	87	83	77	87	80	74	87	75	62	85	66	47	81	51	39	76	41	34	73	36	30	64	32	26			
			Exposed	87	86	80	87	82	76	87	79	73	87	75	65	87	72	54	85	65	46	82	55	40	77	41	34	72	35	29	59	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	86	79	86	80	74	81	75	63	76	71	49	72	57	41	58	47	36	47	40	32			
			Exposed	87	87	85	87	87	81	87	84	77	87	81	74	83	78	72	80	75	62	77	72	53	72	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21
	C	0-7	Interior	86	86	78	86	84	74	86	81	71	86	77	60	85	75	52	82	72	45	79	65	40	74	51	34	65	41	29	52	36	25	43	31	22	38	27	19	33	24	17
			Exposed	85	74	51	81	71	43	77	61	38	74	52	35	72	45	31	63	41	29	55	37	26	43	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	86	85	75	86	81	72	86	78	61	85	74	50	82	71	43	79	61	39	76	52	35	69	40	30	52	35	26	41	30	22	36	26	19	32	23	17	28	20	23
			Exposed	82	71	42	78	59	38	74	48	34	71	41	31	60	38	28	51	34	25	43	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	87	87	82	87	84	78	87	80	74	87	77	71	87	74	60	87	71	50	84	61	43	78	45	36	74	37	31	65	32	27	52	28	23	43	25	21	38	22	18
			Exposed	87	74	60	86	69	48	82	56	41	79	47	37	76	41	34	73	37	31	70	34	28	53	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	87	87	87	87	87	83	87	86	79	87	83	76	85	80	73	82	77	68	79	74	58	74	64	44	63	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	85	79	73	81	76	66	78	73	54	74	66	46	72	57	40	61	49	37	52	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	86	82	72	86	78	63	85	75	53	82	72	45	79	65	40	76	56	37	73	50	33	62	40	28	49	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	79	64	40	75	54	36	72	47	32	64	41	29	55	37	26	48	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	86	79	65	86	75	53	82	72	44	79	62	39	76	52	35	73	44	32	67	40	29	49	34	25	40	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	76	52	35	72	43	31	62	38	28	51	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	87	82	76	87	78	72	87	75	62	87	71	51	84	61	43	81	51	39	78	44	36	73	36	30	61	31	26	48	27	22	40	24	20	35	21	17	31	18	23
			Exposed	84	60	43	80	49	38	77	41	34	73	37	31	70	34	28	60	31	25	52	28	23	41	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	87	87	87	87	87	83	87	86	79	87	83	76	85	80	73	82	77	68	79	74	58	74	64	44	63	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	85	79	73	81	76	66	78	73	54	74	66	46	72	57	40	61	49	37	52	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
10	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	81	73	81	80	70	81	75	53	80	70	42	76	56	36	72	46	32	61	40	28	51	35	25
			Exposed	81	81	76	81	81	73	81	79	65	81	76	55	81	73	47	80	68	42	77	56	37	74	47	32	59	39	27	48	34	24	40	29	21	35	26	18	31	23	25
		7-20	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	80	70	81	77	59	81	72	44	77	57	37	73	44	32	61	38	28	48	33	25	41	30	22
			Exposed	81	81	73	81	79	67	81	76	55	81	73	46	80	66	40	77	56	37	74	47	33	62	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	83	84	84	80	84	83	77	84	80	74	84	75	62	84	66	47	81	51	39	76	41	34	73	36	30	64	32	26
			Exposed	84	84	80	84	82	76	84	79	73	84	75	65	84	72	54	84	65	46	82	55	40	77	41	34	72	35	29	59	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	79	86	80	74	81	75	63	76	71	49	72	57	41	58	47	36	47	40	32
			Exposed	86	86	85	86	86	81	86	84	77	86	81	74	83	78	72	80	75	62	77	72	53	72	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21
	C	0-7	Interior	81	81	78	81	81	71	81	81	77	60	81	75	52	81	72	45	79	65	40	74	51	34	65	41	29	52	36	25	43	31	22	38	27	19	33	24	17		
			Exposed	81	74	51	81	71	43	77	61	38	74	52	35	72	45	31	63	41	29	55	37	26	43	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	81	81	75	81	81	72	81	78	61	81	74	50	81	71	43	79	61	39	76	52	35	69	40	30	52	35	26	41	30	22	36	26	19	32	23	17	28	20	23
			Exposed	81	71	42	78	59	38	74	48	34	71	41	31	60	38	28	51	34	25	43	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	84	84	82	84	84	78	84	80	74	84	77	71	84	74	60	84	71	50	84	61	43	78	45	36	74	37	31	65	32	27	52	28	23	43	25	21	38	22	18
			Exposed	84	74	60	84	69	48	82	56	41	79	47	37	76	41	34	73	37	31	70	34	28	53	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	86	86	86	86	86	83	86	86	79	86	83	76	85	80	73	82	77	68	79	74	58	74	64	44	63	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	85	79	73	81	76	66	78	73	54	74	66	46	72	57	40	61	49	37	52	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	81	81	72	81	78	63	81	75	53	81	72	45	79	65	40	76	56	37	73	50	33	62	40	28	49	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	79	64	40	75	54	36	72	47	32	64	41	29	55	37	26	48	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	81	81	73	81	79	67	81	76	55	81	73	46	80	66	40	77	56	37	74	47	33	62	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
			Exposed	76	52	35	72	43	31	62	38	28	51	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	83	84	84	80	84	83	77	84	80	74	84	75	62	84	66	47	81	51	39	76	41	34	73	36	30	64	32	26
			Exposed	84	84	80	84	82	76	84	79	73	84	75	65	84	72	54	84	65	46	82	55	40	77	41	34	72	35	29	59	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	79	86	80	74	81	75	63	76	71	49	72	57	41	58	47	36	47	40	32
			Exposed	86	86	85	86	86	81	86	84	77	86	81	74	83	78	72	80	75	62	77	72	53	72	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21
	C	0-7	Interior	81	81	78	81	81	71	81	81	77	60	81	75	52	81	72	45	79	65	40	74	51	34	65	41	29	52	36	25	43	31	22	38	27	19	33	24	17		
			Exposed	81	74	51	81	71	43	77	61	38	74	52	35	72	45	31	63	41	29	55	37	26	43	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	81	81	75	81	81	72	81	78	61	81	74	50	81	71	43	79	61	39	76	52	35	69	40	30	52	35	26	41	30	22	36	26	19	32	23	17	28	20	23
			Exposed	81	71	42	78	59	38	74	48	34	71	41	31	60	38	28	51	34	25	43	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	84	84	82	84	84	78	84	80	74	84	77	71	84	74	60	84	71	50	84	61	43	78	45	36	74	37	31	65	32	27	52	28	23	43	25	21	38	22	18
			Exposed	84	74	60	84	69	48	82	56	41	79	47	37	76	41	34	73	37	31	70	34	28	53	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	86	86	86	86	86	83	86	86	79	86	83	76	85	80	73	82	77	68	79	74	58	74	64	44	63	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	86	86	85	86	86	81	86	84	77	86	81	74	83	78	72	80	75	62	77	72	53	72	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21
	D	0-7	Interior	81	81	72	81	78	63	81	75	53	81	72	45	79	65	40	76	56	37	73	50	33	62	40	28	49	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	79	64	40	75	54	36	72	47	32	64	41	29	55	37	26	48	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	81	81	73	81	79	67	81	76	55	81	73	46	80	66	40	77	56	37	74	47	33	62	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
			Exposed	76	52	35	72	43	31	62	38	28	51	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	83	84	84	80	84	83	77	84	80	74	84	75	62	84	66	47	81	51	39	76	41	34	73	36	30	64	32	26
			Exposed	84	84	80	84	82	76	84	79	73	84	75	65	84	72	54	84	65	46	82	55	40	77	41	34	72	35	29	59	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	79	86	80	74	81	75	63	76	71	49	72	57	41	58	47	36	47	40	32
			Exposed	86	86	85	86	86	81	86	84	77	86	81	74	83	78	72	80	75	62	77	72	53	72	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	73	53	73	70	42	73	56	36	72	46	32	61	40	28	51	35	25
			Exposed	73	73	73	73	73	73	73	73	65	73	73	55	73	73	47	73	68	42	73	60	38	72	47	32	59	39	27	48	34	24	40	29	21	35	26	18	31	23	25
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	73	59	73	72	44	73	57	37	73	44	32	61	38	28	48	33	25	41	30	22
			Exposed	73	73	73	73	73	73	73	73	55	73	73	46	73	66	40	73	56	37	73	47	33	62	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	62	78	66	47	78	51	39	76	41	34	73	36	30	64	32	26	
			Exposed	78	78	78	78	78	76	78	78	73	78	75	65	78	72	54	78	65	46	78	55	40	77	41	34	72	35	29	59	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	80	74	81	75	63	76	71	49	72	57	41	58	47	36	47	40	32
			Exposed	81	81	81	81	81	81	81	81	77	81	81	74	81	78	72	80	75	62	77	72	53	72	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21
	C	0-7	Interior	73	73	73	73	73	73	73	73	71	73	73	60	73	73	52	73	72	45	73	65	40	73	51	34	65	41	29	52	36	25	43	31	22	38	27	19	33	24	17
			Exposed	73	73	51	73	71	43	73	61	38	73	52	35	72	45	31	63	41	29	55	37	26	43	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	73	73	73	73	73	72	73	73	61	73	73	50	73	71	43	73	61	39	73	52	35	69	40	30	52	35	26	41	30	22	36	26	19	32	23	17	28	20	23
			Exposed	73	71	42	73	59	38	73	48	34	71	41	31	60	38	28	51	34	25	43	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	78	78	78	78	78	78	78	78	74	78	77	71	78	74	60	78	71	50	78	61	43	78	45	36	74	37	31	65	32	27	52	28	23	43	25	21	38	22	18
			Exposed	78	74	60	78	69	48	78	56	41	78	47	37	76	41	34	73	37	31	70	34	28	53	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	81	81	81	81	81	81	81	81	81	79	81	81	76	81	80	73	81	77	68	79	74	58	74	64	44	63	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	81	79	73	81	76	66	78	73	54	74	66	46	72	57	40	61	49	37	52	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	73	73	72	73	73	63	73	73	53	73	72	45	73	65	40	73	56	37	73	50	33	62	40	28	49	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	73	64	40	73	54	36	72	47	32	64	41	29	55	37	26	48	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	73	73	65	73	73	53	73	72	44	73	62	39	73	52	35	73	44	32	67	40	29	49	34	25	40	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	73	52	35	72	43	31	62	38	28	51	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	79	79	76	79	78	72	79	75	62	79	71	51	79	61	43	79	51	39	78	44	36	73	36	30	61	31	26	48	27	22	40	24	20	35	21	17	31	18	23
			Exposed	79	60	43	79	49	38	77	41	34	73	37	31	70	34	28	60	31	25	52	28	23	41	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	82	82	80	82	82	77	82	80	74	82	77	69	79	74	58	76	71	50	73	62	43	59	48	36	45	39	31	38	34	27	33	30	24	29	26	21	26	23	18
			Exposed	79	74	58	75	69	48	72	58	41	62	49	37	52	42	34	44	39	31	39	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18

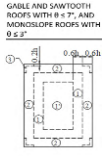
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

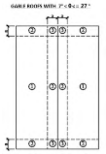
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

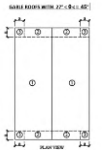
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.











UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

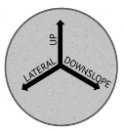
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

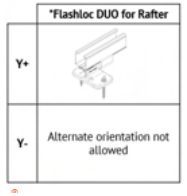
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	60	60	42	60	56	36	60	46	32	60	40	28	51	35	25
			Exposed	60	60	60	60	60	60	60	60	60	60	60	55	60	60	47	60	60	42	60	60	38	60	47	32	59	39	27	48	34	24	40	29	21	35	26	18	31	23	25
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	44	61	57	37	61	44	32	61	38	28	48	33	25	41	30	22
			Exposed	61	61	61	61	61	61	61	61	55	61	61	46	61	61	40	61	56	37	61	47	33	61	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	62	73	66	47	73	51	39	73	41	34	73	46	30	64	32	26
			Exposed	73	73	73	73	73	73	73	73	73	73	73	65	73	72	54	73	65	46	73	55	40	73	41	34	72	35	29	59	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	75	63	76	71	49	72	57	41	58	47	36	47	40	32
			Exposed	76	76	76	76	76	76	76	76	74	76	76	72	76	75	62	76	72	53	72	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21			
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	52	60	60	45	60	60	40	60	51	34	60	41	29	52	36	25	43	31	22	38	27	19	33	24	17
			Exposed	60	60	51	60	60	43	60	60	38	60	52	35	60	45	31	60	41	29	55	37	26	43	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	50	61	61	43	61	61	39	61	52	35	61	40	30	52	35	26	41	30	22	36	26	19	32	23	17	28	20	23
			Exposed	61	61	42	61	59	38	61	48	34	61	41	31	60	38	28	51	34	25	43	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	71	73	73	60	73	71	50	73	61	43	73	45	36	73	37	31	65	32	27	52	28	23	43	25	21	38	22	18
			Exposed	73	73	60	73	69	48	73	56	41	73	47	37	73	41	34	73	37	31	70	34	28	53	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	76	76	68	76	74	58	74	64	44	63	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	76	76	73	76	76	66	76	73	54	74	66	46	72	57	40	61	49	37	52	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	60	60	60	60	60	60	60	60	53	60	60	45	60	60	40	60	56	37	60	50	33	60	40	28	49	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	60	60	40	60	54	36	60	47	32	60	41	29	55	37	26	48	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	61	61	61	61	61	53	61	61	44	61	61	39	61	52	35	61	44	32	61	40	29	49	34	25	40	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	61	52	35	61	43	31	61	38	28	51	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	74	74	74	74	74	72	74	74	62	74	71	51	74	61	43	74	51	39	74	44	36	73	36	30	61	31	26	48	27	22	40	24	20	35	21	17	31	18	23
			Exposed	74	60	43	74	49	34	73	37	31	70	34	28	60	31	25	52	28	23	41	24	20	35	20	26	30	18	22	26	23	19	23	19	17	21	26	23	18	15	
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	77	69	78	74	58	76	71	50	73	62	43	59	48	36	45	39	31	38	34	27	33	30	24	29	26	21	26	23	18
			Exposed	78	74	58	75	69	48	72	58	41	62	49	37	52	42	34	44	39	31	39	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18
40	B	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	42	56	56	36	56	46	32	56	40	28	51	35	25
			Exposed	56	56	56	56	56	56	56	56	56	56	56	55	56	56	47	56	56	42	56	56	38	56	47	32	56	39	27	48	34	24	40	29	21	35	26	18	31	23	25
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	44	57	57	37	57	44	32	57	38	28	48	33	25	41	30	22
			Exposed	57	57	57	57	57	57	57	57	55	57	57	46	57	57	40	57	56	37	57	47	33	57	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	62	70*	65	47	70*	51	39	70*	41	34	70*	46	30	64	32	26
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65	70*	70*	54	70*	65	46	70*	55	40	70*	41	34	70*	35	29	59	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	63	72*	71*	49	69*	57	41	58	47	36	47	40	32
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	73*	73*	62	73*	72*	53	72*	58	41	56	46	35	43	38	30	38	34	27	33	30	24	29	26	21
	C	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	52	56	56	45	56	56	40	56	51	34	56	41	29	52	36	25	43	31	22	38	27	19	33	24	17
			Exposed	56	56	51	56	56	43	56	56	38	56	52	35	56	45	31	56	41	29	55	37	26	43	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	50	57	57	43	57	57	39	57	52	35	57	40	30	52	35	26	41	30	22	36	26	19	32	23	17	28	20	23
			Exposed	57	57	42	57	57	38	57	48	34	57	41	31	57	38	28	51	34	25	43	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	60	70*	70*	50	70*	61	43	70*	45	36	73*	37	31	64	32	27	52	28	23	43	25	21	38	22	18
			Exposed	70*	70*	60	70*	69*	48	70*	56	41	70*	47	37	70*	41	34	70*	37	31	70*	34	28	53	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69*	73*	73*	58	71*	65*	44	63	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	73*	73*	73*	73*	73*	66*	73*	73*	54	73*	67*	46	72*	57	40	61	49	37	52	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	60	60	60	60	60	60	60	60	53	60	60	45	60	60	40	60	56	37	60	50	33	60	40	28	49	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	60	60	40	60	54	36	60	47	32	60	41	29	55	37	26	48	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	61	61	61	61	61	53	61	61	44	61	61	39	61	52	35	61	44	32	61	40	29	49	34	25	40	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	61	52	35	61	43	31	61	38	28	51	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	70	70	70	70	70	70	70	70	62	70	70	51	70	61	43	70	51	39	70	44	36	70	36	30	61	31	26	48	27	22	40	24	20	35	21	17	31	18	23
			Exposed	70	60	43	70	49	38	70	41	34	70	37	31	70	34	28	60	31	25	52	28	23	41	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	71*	74*	74*	58	73*	72*	50	73*	62	43	59	48	36	45	39	31	38	34	27	33	30	24	29	26	21	26	23	18
			Exposed	74*	74*	58	74*	69	48	72*	58	41	62	49	37	52	42	34	44	39	31	39	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18
50	B	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	42	48	48	36	48	46	32	48	40	28	48	35	25
			Exposed	48	48	48	48	48	48	48	48	48	48	48	47	48	48	42	48	48	38	48	47	32	48	39	27	48	34	24	40	29	21	35	26	18	31	23	25			
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	37	49	44	32	49	38	28	48	33	25	41	30	22
			Exposed	49	49	49	49	49	49	49	49	49	49	49	46	49	49	40	49	49	37	49	47	33	49	38	28	47	33	24	39	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	47	62*	51	39	62*	41	34	62*	36	30	60*	32	26
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	54	62*	62*	46	62*	55	40	62*	41	34	62*	35	29	59*	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	63*	64*	64*	49	61*	58*	41	58*	47	36	47	40	32
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	54*	67*	58*	41	57*	46	35	43	38	30	38	34	27	33	30	24
	C	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	40	48	48	34	48	41	29	48	36	25	43	31	22	38	27	19	33	24	17
			Exposed	48	48	48	48	48	43	48	48	38	48	48	35	48	45	31	48	41	29	48	37	26	43	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	43	49	49	39	49	49	35	49	40	30	49	35	26	41	30	22	36	26	19	32	23	17	28	20	23			
			Exposed	49	49	42	49	49	38	49	48	34	49	41	31	49	38	28	49	34	25	43	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	62*	50	62*	61*	43	62*	45	36	62*	37	31	60*	32	27	52	28	23	43	25	21	38	22	18
			Exposed	62*	62*	60*	62*	62*	48	62*	56	41	62*	47	37	62*	41	34	62*	37	31	62*	34	28	53	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	58*	62*	62*	44	58*	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	67*	67*	67*	67*	67*	66*	67*	67*	55*	67*	66*	46	67*	57*	40	61*	49	37	52	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	45	52	52	40	52	52	37	52	50	33	52	40	28	49	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	52	52	40	52	52	36	52	47	32	52	41	29	52	37	26	48	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	53	53	53	53	53	53	53	53	44	53	53	39	53	52	35	53	44	32	53	40	29	49	34	25	40	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	53	52	35	53	43	31	53	38	28	51	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	61	66*	66*	51	66*	61	43	66*	51	39	66*	44	36	66*	36	30	59	31	26	48	27	22	40	24	20	35	21	17	31	18	23
			Exposed	66*	60	43	66*	49	38	66*	41	34	66*	37	31	66*	34	28	60	31	25	52	28	23	41	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	59*	69*	69*	50	66*	63*	43	60*	48	36	45	39	31	38	34	27	33	30	24	29	26	21	26	23	18
			Exposed	71*	71*	59*	71*	69*	48	71*	59*	41	62*	49	37	52	42	34	44	39	31	39	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18

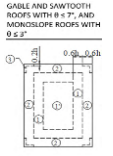
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

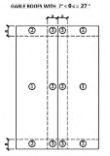
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

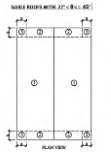
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

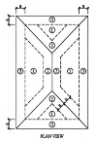












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

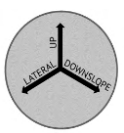
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

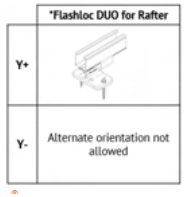
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	32	41	41	40	28	41	35	25
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	32	41	39	27	41	34	24	40	29	21	35	26	18	31	23	25
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	32	41	38	28	41	33	25	41	30	22
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	37	41	41	33	41	38	28	41	33	24	39	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47	55*	51*	39	55*	41	34	54*	36	30	53*	32	26
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	46	55*	55*	40	55*	41	34	55*	35	29	55*	31	25	48	27	22	40	24	20	36	21	17
		27-45	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	59*	59*	59*	57*	57*	50*	54*	54*	41	51*	47*	36	47*	40	32
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	53*	60*	58*	41	56*	46*	35	43	38	30	38	34	27	33	30	24	29	26	21
	C	0-7	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	34	41	41	29	41	36	25	41	31	22	38	27	19	33	24	17
			Exposed	41	41	41	41	41	41	41	41	38	41	41	35	41	41	31	41	41	29	41	37	26	41	31	22	37	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	41	30	41	35	26	41	30	22	36	26	19	32	23	17	28	20	23			
			Exposed	41	41	41	41	41	38	41	41	34	41	41	31	41	38	28	41	34	25	41	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	55*	55*	50*	55*	55*	43	55*	45	36	55*	37	31	53*	32	27	51*	28	23	43	25	21	38	22	18
			Exposed	55*	55*	55*	55*	55*	48	55*	55*	41	55*	47	37	55*	41	34	55*	37	31	55*	34	28	53*	29	24	42	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	59*	59*	58*	55*	55*	44	52*	50*	37	48*	41	32	40	36	28	35	31	25	31	28	22
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	46*	60*	57*	40	60*	49*	37	52*	42	34	40	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	37	45	45	33	45	40	28	45	34	24	41	30	21	35	26	18	31	23	24	28	20	22
			Exposed	45	45	40	45	45	36	45	45	32	45	41	29	45	37	26	45	34	24	42	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	46	46	46	46	46	46	46	46	44	46	46	39	46	46	35	46	44	32	46	40	29	46	34	25	40	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	46	46	35	46	43	31	46	38	28	46	34	26	43	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	51	59*	59*	43	59*	51	39	59*	44	36	59*	36	30	56*	31	26	48	27	22	40	24	20	35	21	17	31	18	23
			Exposed	59*	59*	43	59*	49	38	59*	41	34	59*	37	31	59*	34	28	59*	31	25	52	28	23	41	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	58*	61*	61*	50	59*	59*	43	55*	48	36	45	39	31	38	34	27	33	30	24	29	26	21	26	23	18
			Exposed	64*	64*	58*	64*	64*	48	64*	58*	41	62*	49	37	52*	42	34	44	39	31	39	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18
70	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	35	25			
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	27	35	35	24	35	23	25
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	28	36	33	25	36	30	22
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	28	36	33	24	36	28	21	34	25	18	30	22	24	27	19	22
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	39	49*	41	34	49*	36	30	47*	32	26
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	40	49*	41	34	49*	35	29	49*	31	25	48*	27	22	40	24	20	36	21	17
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	41*	53*	53*	53*	51*	51*	49*	49*	41*	32
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	53*	54*	54*	41*	53*	46*	35	43*	38	30	38	34	27	33	30	24	29	26	21
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	35	35	35	25	35	34	27	35	34	24	33	24	17
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	29	35	35	26	35	31	22	35	27	19	32	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	30	36	36	36	36	36	30	36	36	26	36	30	22	36	26	19
			Exposed	36	36	36	36	36	36	36	36	34	36	36	31	36	36	28	36	34	25	36	31	23	36	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	49*	49*	49*	49*	36	49*	37	31	47*	32	27	45*	28	23
			Exposed	49*	49*	49*	49*	49*	48*	49*	49*	41	49*	47*	37	49*	41	34	49*	37	31	49*	34	28	49*	29	24	42*	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	52*	52*	52*	50*	50*	44*	47*	47*	37	45*	41*	32	40*	36	28	35	31	25	31	28	22
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	46*	54*	54*	40*	54*	49*	37	52*	42*	34	40*	36	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	33	39	39	28	39	34	24	39	30	21	35	26	18	31	23	24	28	20	22
			Exposed	39	39	39	39	39	36	39	39	32	39	39	29	39	37	26	39	34	24	39	31	22	36	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	39	39	39	39	39	39	39	39	39	39	39	35	39	39	32	39	39	32	39	39	29	39	34	25	39	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	39	39	35	39	39	31	39	38	28	39	34	26	39	31	23	39	28	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	43	53*	51*	39	53*	44	36	53*	36	30	50*	31	26	48*	27	22	40	24	20	35	21	17	31	18	23			
			Exposed	53*	53*	43	53*	49*	38	53*	41	34	53*	37	31	53*	34	28	53*	31	25	52*	28	23	41	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	55*	55*	50*	53*	53*	43	50*	48*	36	45*	39	31	38	34	27	33	30	24	29	26	21	26	23	18
			Exposed	58*	58*	58*	58*	58*	48	58*	58*	41	58*	49*	37	52*	42	34	44*	39	31	39	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18
80	B	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	25
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	23	25
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	25	31	30	22
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	24	27	19	22
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	41*	34	43*	36	30	43*	32	26
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	41*	34	43*	35	29	43*	31	25	43*	31	25	34	24	20	36	21	17
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	48*	48*	46*	46*	46*	44*	44*	41*	43*	43*	36*	41*	40*	32
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	40*	49*	49*	37*	48*	42*	34	40*	36*	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	C	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	31	22	31	27	19	31	24	17
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	22	31	27	19	31	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	26	31	30	22	31	26	19	31	23	17	28	20	23
			Exposed	31	31	31	31	31	31	31	31	31	31	31	28	31	31	25	31	31	23	31	26	20	31	23	25	27	20	22	23	17	19	21	23	17	18	20	15			
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	32	27	41*	28	23	40*	25	21	38*	22	18
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	37*	43*	41*	34	43*	37*	31	43*	34	28	43*	29	24	42*	25	20	36	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	48*	48*	45*	45*	44*	43*	43*	37*	41*	41*	32	39*	36*	28	35	31	25	31	28	22
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	40*	49*	49*	37*	48*	42*	34	40*	36*	28	34	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	28	34	34	24	34	30	21	34	26	18	31	23	24	28	20	22
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	34	26	34	34	24	34	31	22	34	26	18	31	22	24	27	19	21	23	26	18	20	23	16	18	20	14
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	34	25	35	29	21	34	25	18	30	22	24	26	19	22	23	17	19
			Exposed	35	35	35	35	35	35	35	35	28	35	34	26	35	31	23	35	28	21	35	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	48*	43*	48*	48*	36	48*	36	30	46*	31	26	44*	27	22	39	24	20	35	21	17	31	18	23
			Exposed	48*	48*	43*	48*	48*	38	48*	41*	34	48*	37	31	48*	34	28	48*	31	25	48*	28	23	41*	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	51*	51*	50*	50*	50*	49*	49*	43*	46*	46*	36	43*	39*	31	38	34	27	33	30	24	29	26	21	26	23	18
			Exposed	53*	53*	53*	53*	53*	48*	53*	53*	41*	53*	49*	37	51*	42*	34	44*	39*	31	40*	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18

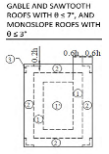
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

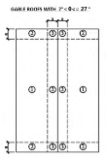
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

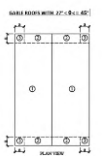
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

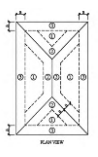












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

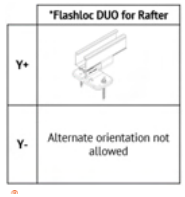
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	21	28	26	18	28	23	25
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	22
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	21	28	25	18	28	22	24	27	19	22
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	36*	30	39*	32	26	39*	32	26
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	35*	29	39*	31	25	39*	27	22	39*	24	20	36*	21	17
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	42*	42*	41*	41*	41*	39*	39*	36*	38*	32*	28	36*	28	23
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	35*	42*	38*	30	38*	34*	27	33*	30	24	29	26	21
	C	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	22	28	27	19	28	23	25	28	20	22	25	18	19	22	24	17
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	22	28	26	19	28	23	17	28	20	23
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	26	20	28	23	25	27	20	22	23	17	19	21	23	~~17~~	18	20	~~15~~
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	37*	31	39*	32	27	38*	28	23	37*	25	21	36*	22	18
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	39*	39*	34*	39*	37*	31	39*	34*	28	39*	29	24	39*	25	20	36*	21	18	32	19	23	28	25	21	25	22	18
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	43*	43*	42*	42*	42*	40*	40*	37*	38*	38*	32*	37*	36*	28	35*	31	25	31	28	22
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	40*	44*	44*	37*	43*	42*	34*	40*	36*	28	34*	31	24	30	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	24	31	30	21	31	26	18	31	23	24	28	20	22
			Exposed	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	24	31	31	22	31	26	18	31	22	24	27	19	21	23	26	18	20	23	~~16~~	18	20	~~14~~		
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	29	21	31	25	18	30	22	24	26	19	22	23	17	19
			Exposed	31	31	31	31	31	31	31	31	28	31	31	26	31	31	23	31	28	21	31	26	19	30	22	25	26	19	21	22	25	18	20	22	~~16~~	17	19	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	36	43*	36	30	42*	31	26	40*	27	22	39*	24	20	35	21	17	31	18	23
			Exposed	43*	43*	43*	43*	43*	38*	43*	41*	34	43*	37*	31	43*	34	28	43*	31	25	43*	28	23	41*	24	20	35	20	26	30	18	22	26	23	19	23	21	17	21	18	~~15~~
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	47*	47*	46*	46*	46*	45*	45*	43*	42*	42*	36*	40*	39*	31	38*	34	27	33	30	24	29	26	21	26	23	18
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	48*	37*	47*	42*	34	44*	39*	31	39*	35*	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18
100	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	25	25	25	21	25	25	18	25	23	25			
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	25	25	25	24	25	19	22			
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	34*	35*	35*	30*	35*	32*	26			
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	34*	35*	35*	29	35*	31*	25	35*	27	22	35*	24	20	35*	21	17
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	39*	39*	38*	38*	38*	37*	37*	36*	36*	36*	32*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	39*	38*	31*	38*	34*	27	33*	30*	24	29*	26	21
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	24	17		
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	25	25	20	22	25	18	19	22	24	17
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	17	25	20	23			
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	23	25	25	20	22	23	17	19	21	23	~~17~~	18	20	~~15~~
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	31*	35*	32*	27	35*	28	23	34*	25	21	33*	22	18			
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	34*	35*	35*	35*	31	35*	34*	28	35*	29	24	35*	25	20	35*	21	18	32*	19	23	28	25	21	25	22	18
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	39*	39*	37*	37*	37*	36*	36*	32*	34*	34*	28	33*	31*	25	31*	28	22
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*	40*	40*	34*	39*	36*	29*	34*	31*	24	30*	27	21	26	23	18	23	21	25	20	18	22
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	20	22
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	28	22	28	26	18	28	22	24	27	19	21	23	26	18	20	23	~~16~~	18	20	~~14~~
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	21	28	25	18	28	22	24	26	19	22	23	17	19
			Exposed	28	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	19	28	22	25	26	19	21	22	25	18	20	22	~~16~~	17	19	~~14~~	23	~~17~~	~~13~~		
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	30	39*	31	26	38*	27	22	36*	24	20	35*	21	17	31	18	23		
			Exposed	39*	39*	39*	39*	39*	38*	39*	39*	34*	39*	37*	31	39*	34*	28	39*	31	25	39*	28	23	39*	24	20	35*	20	26	30	18	22	26	23	19	23	21	17	21	18	~~15~~
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	43*	43*	42*	42*	42*	41*	41*	41*	40*	40*	36*	38*	38*	31	36*	34*	27	33*	30	24	29	26	21	26	23	18
			Exposed	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	37*	43*	42*	34*	42*	39*	31	39*	35*	28	33*	30	24	29	26	20	25	22	18	22	19	23	19	17	21	26	23	18		

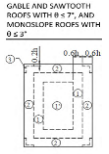
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

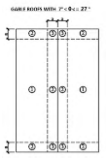
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

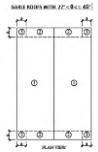
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

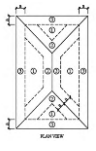












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

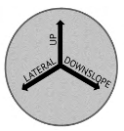
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

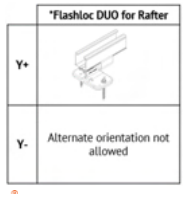
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	101	102	102	96	102	102	92	102	101	88	102	97	84	102	90	78	97	84	73	91	79	61	86	74	53	81	68	47	77	59	42
			Exposed	102	102	91	102	100	87	102	95	82	102	91	79	101	87	75	97	84	72	93	80	64	86	75	54	80	66	46	75	57	40	71	49	35	60	44	31	53	39	41
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	94	81	102	86	74	94	80	62	87	74	54	81	64	47	76	56	42	72	50	37
			Exposed	102	102	88	102	97	83	102	92	79	102	87	75	98	83	72	93	79	62	89	76	56	82	64	48	76	55	41	66	48	35	57	42	31	50	37	41	45	33	37
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	98	103	103	93	103	98	89	103	90	82	103	83	76	98	77	65	92	72	57	87	61	50	82	54	45
			Exposed	103	103	98	103	102	92	103	96	87	103	91	83	103	87	79	103	83	75	100	79	72	92	73	58	86	60	49	80	52	43	76	45	37	71	40	33	60	35	29
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	96	103	98	88	99	91	82	92	85	77	86	80	72	80	75	60	76	71	54
			Exposed	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	99	90	81	94	86	78	86	80	72	80	75	59	74	65	51	63	57	45	56	50	40	49	44	35
	C	0-7	Interior	102	102	94	102	102	89	102	98	85	102	93	81	102	89	77	99	86	74	95	82	71	88	77	57	82	72	49	77	60	42	73	52	37	63	46	33	56	41	29
			Exposed	102	89	77	98	85	73	93	81	65	89	77	58	85	74	53	82	71	48	79	62	44	73	53	37	62	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	102	102	91	102	100	86	102	94	81	102	89	77	101	85	74	96	81	65	92	78	60	84	72	50	78	58	43	73	50	37	60	44	33	53	39	29	47	35	39
			Exposed	101	85	74	95	80	64	89	76	57	85	73	52	81	63	47	77	58	43	74	53	39	61	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	103	103	101	103	103	95	103	99	90	103	94	85	103	89	81	103	85	77	103	81	74	95	75	61	88	63	52	82	55	45	77	48	40	73	42	35	64	37	31
			Exposed	103	89	81	103	84	76	101	79	73	96	76	62	92	72	56	88	62	51	84	57	47	78	48	40	73	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	103	103	103	103	103	102	103	103	97	103	102	92	103	97	88	102	93	84	97	89	80	89	82	74	82	77	63	76	72	54	71	60	47	59	53	42	52	47	37
			Exposed	103	97	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	62	78	73	57	72	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	102	100	86	102	94	82	102	90	78	100	86	74	95	82	71	91	79	61	87	76	56	81	70	48	76	58	41	71	50	35	60	44	31	53	38	41	47	34	37
			Exposed	95	82	71	90	78	60	86	75	54	82	72	49	79	62	44	76	57	40	73	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	102	96	83	102	91	78	102	86	74	96	82	67	91	78	60	87	74	54	83	71	50	77	57	42	71	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	91	78	59	86	74	53	82	64	48	78	58	43	74	53	39	68	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	103	101	91	103	95	86	103	90	82	103	85	78	103	81	74	98	78	67	94	74	60	87	61	51	81	53	43	76	46	38	71	40	33	60	35	29	53	31	39
			Exposed	103	81	74	97	77	64	92	73	57	88	63	52	84	57	47	81	52	43	77	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26
		27-45	Interior	103	103	99	103	103	93	103	98	88	102	93	84	97	89	80	92	85	77	88	81	74	81	76	61	75	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	97	88	80	91	84	76	86	80	72	82	76	62	78	73	57	74	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	90	78	95	84	73	91	79	61	86	74	53	81	68	47	77	59	42
			Exposed	95	95	91	95	95	87	95	95	82	95	91	79	95	87	75	95	84	72	93	80	64	86	75	54	80	66	46	75	57	40	71	49	35	60	44	31	53	39	41
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	93	96	96	88	96	96	84	96	94	81	96	86	74	94	80	62	87	74	54	81	64	47	76	56	42	72	50	37
			Exposed	96	96	88	96	96	83	96	92	79	96	87	75	96	83	72	93	79	62	89	76	56	82	64	48	76	55	41	66	48	35	57	42	31	50	37	41	45	33	37
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	98	100	100	93	100	98	89	100	90	82	100	83	76	98	77	65	92	72	57	87	61	50	82	54	45
			Exposed	100	100	98	100	100	92	100	96	87	100	91	83	100	87	79	100	83	75	100	79	72	92	73	58	86	60	49	80	52	43	76	45	37	71	40	33	60	35	29
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	96	102	98	88	99	91	82	92	85	77	86	80	72	80	75	60	76	71	54
			Exposed	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	99	90	81	94	86	78	86	80	72	80	75	59	74	65	51	63	57	45	56	50	40	49	44	35
	C	0-7	Interior	95	95	94	95	95	89	95	95	85	95	93	81	95	89	77	95	86	74	95	82	71	88	77	57	82	72	49	77	60	42	73	52	37	63	46	33	56	41	29
			Exposed	95	89	77	95	85	73	93	81	65	89	77	58	85	74	53	82	71	48	79	62	44	73	53	37	62	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	96	96	91	96	96	86	96	94	81	96	89	77	96	85	74	96	81	65	92	78	60	84	72	50	78	58	43	73	50	37	60	44	33	53	39	29	47	35	39
			Exposed	96	85	74	95	80	64	89	76	57	85	73	52	81	63	47	77	58	43	74	53	39	61	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	100	100	100	100	95	100	99	90	100	94	85	100	89	81	100	85	77	100	81	74	95	75	61	88	63	52	82	55	45	77	48	40	73	42	35	64	37	31
			Exposed	100	89	81	100	84	76	100	79	73	96	76	62	92	72	56	88	62	51	84	57	47	78	48	40	73	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	102	102	102	102	102	102	102	102	97	102	102	92	102	97	88	102	93	84	97	89	80	89	82	74	82	77	63	76	72	54	71	60	47	59	53	42	52	47	37
			Exposed	102	97	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	62	78	73	57	72	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	61	87	76	56	81	70	48	76	58	41	71	50	35	60	44	31	53	38	41	47	34	37
			Exposed	95	82	71	90	78	60	86	75	54	82	72	49	79	62	44	76	57	40	73	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	96	96	83	96	91	78	96	94	81	96	89	77	96	85	74	96	81	65	92	78	60	84	72	50	78	58	43	73	50	37	60	44	33	53	39	29	47	35	39
			Exposed	91	78	59	86	74	53	82	64	48	78	58	43	74	53	39	68	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	101	101	91	101	95	86	101	90	82	101	85	78	101	81	74	98	78	67	94	74	60	87	61	51	81	53	43	76	46	38	71	40	33	60	35	29	53	31	39
			Exposed	101	81	74	97	77	64	92	73	57	88	63	52	84	57	47	81	52	43	77	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26
		27-45	Interior	103	103	99	103	103	93	103	98	88	102	93	84	97	89	80	92	85	77	88	81	74	81	76	61	75	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	97	88	80	91	84	76	86	80	72	82	76	62	78	73	57	74	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	61	86	74	53	81	68	47	77	59	42
			Exposed	86	86	86	86	86	86	86	86	86	86	86	79	86	86	75	86	84	72	86	80	64	86	75	54	80	66	46	75	57	40	71	49	35	60	44	31	53	39	41
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	81	87	86	74	87	80	62	87	74	54	81	64	47	76	56	42	72	50	37
			Exposed	87	87	87	87	87	83	87	87	79	87	87	75	87	83	72	87	79	62	87	76	56	82	64	48	76	55	41	66	48	35	57	42	31	50	37	41	45	33	37
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	65	92	72	57	87	61	50	82	54	45
			Exposed	92	92	92	92	92	92	92	92	91	83	92	87	79	92	83	75	92	79	72	92	73	58	86	60	49	80	52	43	76	45	37	71	40	33	60	35	29	53	31
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	88	96	91	82	92	85	77	86	80	72	80	75	60	76	71	54
			Exposed	96	96	96	96	96	96	96	96	94	96	96	89	96	94	85	96	90	81	94	86	78	86	80	72	80	75	59	74	65	51	63	57	45	56	50	40	49	44	35
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	77	86	86	74	86	82	71	86	77	57	82	72	49	77	60	42	73	52	37	63	46	33	56	41	29
			Exposed	86	86	77	86	85	73	86	81	65	86	77	58	85	74	53	82	71	48	79	62	44	73	53	37	62	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	87	87	87	87	87	86	87	87	81	87	87	77	87	85	74	87	81	65	87	78	60	84	72	50	78	58	43	73	50	37	60	44	33	53	39	29	47	35	39
			Exposed	87	85	74	87	80	64	87	76	57	85	73	52	81	63	47	77	58	43	74	53	39	61	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	85	92	89	81	92	85	77	92	81	74	92	75	61	88	63	52	82	55	45	77	48	40	73	42	35	64	37	31
			Exposed	92	89	81	92	84	76	92	79	73	92	76	62	92	72	56	88	62	51	84	57	47	78	48	40	73	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	92	96	96	88	96	93	84	96	89	80	89	82	74	82	77	63	76	72	54	71	60	47	59	53	42	52	47	37
			Exposed	96	96	87	96	91	83	95	87	79	90	83	75	85	79	72	81	76	62	78	73	57	72	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	61	86	76	56	81	70	48	76	58	41	71	50	35	60	44	31	53	38	41	47	34	37
			Exposed	86	82	71	86	78	60	86	75	54	82	72	49	79	62	44	76	57	40	73	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	87	87	83	87	87	78	87	86	74	87	82	67	87	78	60	87	74	54	83	71	50	77	57	42	71	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	87	78	59	86	74	53	82	64	48	78	58	43	74	53	39	68	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	94	94	91	94	94	86	94	90	82	94	85	78	94	81	74	94	78	67	94	74	60	87	61	51	81	53	43	76	46	38	71	40	33	60	35	29	53	31	39
			Exposed	94	81	74	94	77	64	92	73	57	88	63	52	84	57	47	81	52	43	77	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26
		27-45	Interior	97	97	97	97	97	93	97	97	88	97	93	84	97	89	80	92	85	77	88	81	74	81	76	61	75	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	97	88	80	91	84	76	86	80	72	82	76	62	78	73	57	74	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31

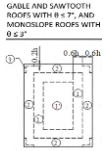
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

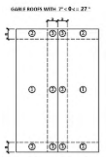
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

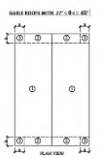
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

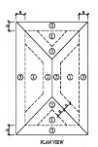












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

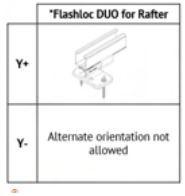
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	80	80	73	80	79	61	80	74	53	80	80	68	47	77	59	42
			Exposed	80	80	80	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	80	64	80	75	54	80	66	46	75	57	40	71	49	35	60	44	31	53	39	41
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	80	80	62	80	74	54	80	64	47	76	56	42	72	50	37	
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	62	80	76	56	80	64	48	76	55	41	66	48	35	57	42	31	50	37	41	45	33	37
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	83	76	87	77	65	87	72	57	87	61	50	82	54	45		
			Exposed	87	87	87	87	87	87	87	87	87	87	87	83	87	87	79	87	83	75	87	79	72	87	73	58	86	60	49	80	52	43	76	45	37	71	40	33	60	35	29
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	90	85	77	86	80	72	80	75	60	76	71	54		
			Exposed	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	78	86	80	72	80	75	59	74	65	51	63	57	45	56	50	40	49	44	35			
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	71	80	80	77	80	77	57	80	72	49	77	60	42	73	52	37	63	46	33	56	41	29
			Exposed	80	80	77	80	80	73	80	80	65	80	77	58	80	74	53	80	71	48	79	62	44	73	53	37	62	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	65	80	78	60	80	72	50	78	58	43	73	50	37	60	44	33	53	39	29	47	35	39
			Exposed	80	80	74	80	80	64	80	76	57	80	73	52	80	63	47	77	58	43	74	53	39	61	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	87	87	87	87	87	87	87	87	87	85	87	87	81	87	85	77	87	81	74	87	75	61	87	63	52	82	55	45	77	48	40	73	42	35	64	37	31		
			Exposed	87	87	81	87	84	76	87	79	73	87	76	62	87	72	56	87	62	51	84	57	47	78	48	40	73	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	84	90	89	80	89	82	74	82	77	63	76	72	54	71	60	47	59	53	42	52	47	37			
			Exposed	90	90	87	90	90	83	90	87	79	90	83	75	85	79	72	81	76	62	78	73	57	72	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	80	80	80	80	80	80	80	80	78	80	80	74	80	80	71	80	79	61	80	76	56	80	70	48	76	58	41	71	50	35	60	44	31	53	38	41	47	34	37
			Exposed	80	80	71	80	78	60	80	75	54	80	72	49	79	62	44	76	57	40	73	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	67	80	78	60	80	74	54	80	71	50	77	57	42	71	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	80	78	59	80	74	53	80	64	48	78	58	43	74	53	39	68	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	88	88	88	88	88	86	88	88	82	88	85	78	88	81	74	88	78	67	88	74	60	87	61	51	81	53	43	76	46	38	71	40	33	60	35	29	53	31	39
			Exposed	88	81	74	88	77	64	88	73	57	88	63	52	84	57	47	81	52	43	77	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26
		27-45	Interior	92	92	92	92	92	92	92	92	88	92	92	84	92	89	80	92	85	77	88	81	74	81	76	61	75	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	92	88	80	91	84	76	86	80	72	82	76	62	78	73	57	74	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	61	78	74	53	78	68	47	77	59	42
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	64	78	75	54	78	66	46	75	57	40	71	49	35	60	44	31	53	39	41
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	62	78	74	54	78	64	47	76	56	42	72	50	37
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	62	78	76	56	78	64	48	76	55	41	66	48	35	57	42	31	50	37	41	45	33	37
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	65	82	72	57	82	61	50	82	54	45
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	58	82	60	49	80	52	43	76	45	37	71	40	33	60	35	29
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	85	77	84	80	72	80	75	60	76	71	54
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	80	72	80	75	59	74	65	51	63	57	45	56	50	40	49	44	35
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	77	78	77	57	78	72	49	77	60	42	73	52	37	63	46	33	56	41	29
			Exposed	78	78	77	78	78	73	78	78	65	78	77	58	78	74	53	78	71	48	78	62	44	73	53	37	62	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	65	78	78	60	78	72	50	78	58	43	73	50	37	60	44	33	53	39	29	47	35	39
			Exposed	78	78	74	78	78	64	78	76	57	78	73	52	78	63	47	77	58	43	74	53	39	61	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	77	82	81	74	82	75	61	82	63	52	82	55	45	77	48	40	73	42	35	64	37	31			
			Exposed	82	82	81	82	82	76	82	79	73	82	76	62	82	72	56	82	62	51	82	57	47	78	48	40	73	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	85	82	74	82	77	63	76	72	54	71	60	47	59	53	42	52	47	37			
			Exposed	86	86	86	86	86	83	86	86	79	86	83	75	85	79	72	81	76	62	78	73	57	72	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	80	80	80	80	80	80	80	80	78	80	80	74	80	80	71	80	79	61	80	76	56	80	70	48	76	58	41	71	50	35	60	44	31	53	38	41	47	34	37
			Exposed	80	80	71	80	78	60	80	75	54	80	72	49	79	62	44	76	57	40	73	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	67	80	78	60	80	74	54	80	71	50	77	57	42	71	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	80	78	59	80	74	53	80	64	48	78	58	43	74	53	39	68	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	84	84	84	84	84	84	84	84	82	84	84	78	84	81	74	84	78	67	84	74	60	84	61	51	81	53	43	76	46	38	71	40	33	60	35	29	53	31	39
			Exposed	84	81	74	84	77	64	84	73	57	84	63	52	84	57	47	81	52	43	77	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26
		27-45	Interior	88	88	88	88	88	88	88	88	88	88	88	84	88	88	80	87	85	77	86	81	74	81	76	61	75	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	88	88	80	88	84	76	86	80	72	82	76	62	78	73	57	74	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	61	74	74	53	74	68	47	74	59	42
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	64	74	74	54	74	66	46	74	57	40	71	49	35	60	44	31	53	39	41			
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	62	75	74	54	75	64	47	75	56	42	72	50	37
			Exposed	75	75	75	75	75	75	75	75	75	75	75	72	75	75	62	75	75	56	75	64	48	75	55	41	66	48	35	57	42	31	50	37	41	45	33	37			
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	65	78	72	57	78	61	50	78	54	45			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	72	78	78	58	78	78	60	49	78	52	43	76	45	37	71	40	33	60	35	29			
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	82	77	80	80	72	79	75	60	76	71	54			
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	83	83	78	83	80	72	80	75	59	74	65	51	63	57	45	56	50	40	49	44	35			
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	57	74	72	49	74	60	42	73	52	37	63	46	33	56	41	29
			Exposed	74	74	74	74	74	73	74	74	65	74	74	58	74	74	53	74	71	48	74	62	44	73	53	37	62	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	65	75	75	60	75	72	50	75	58	43	73	50	37	60	44	33	53	39	29	47	35	39
			Exposed	75	75	74	75	75	64	75	75	57	75	73	52	75	63	47	75	58	43	74	53	39	61	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	61	78	63	52	78	55	45	77	48	40	73	42	35	64	37	31
			Exposed	78	78	78	78	78	76	78	78	73	78	76	62	78	72	56	78	62	51	78	57	47	78	48	40	73	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	74	79	77	63	76	72	54	71	60	47	59	53	42	52	47	37
			Exposed	83	83	83	83	83	83	83	83	79	83	83	75	83	79	72	81	76	62	78	73	57	72	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	71	76	76	61	76	76	56	76	70	48	76	58	41	71	50	35	60	44	31	53	38	41	47	34	37			
			Exposed	76	76	71	76	76	60	76	75	54	76	72	49	76	62	44	76	57	40	73	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	76	76	76	76	76	76	76	76	74	76	76	67	76	76	60	76	74	54	76	71	50	76	57	42	71	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	76	76	59	76	74	53	76	64	48	76	58	43	74	53	39	68	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	74	80	78	67	80	74	60	80	61	51	79	53	43	76	46	38	71	40	33	60	35	29	53	31	39
			Exposed	80	80	74	80	77	64	80	73	57	80	63	52	80	57	47	80	52	43	77	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	84	84	77	83	81	74	81	76	61	75	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	84	84	80	84	84	76	84	80	72	82	76	62	78	73	57	74	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31

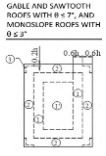
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

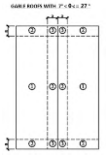
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

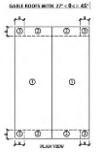
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

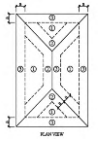












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

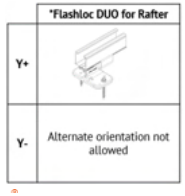
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	61	68	68	53	68	68	47	68	59	42
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	68	54	68	66	46	68	57	40	68	49	35	60	44	31	53	39	41
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	54	69	69	47	69	69	42	69	50	37
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	56	69	64	48	69	55	41	66	48	35	57	42	31	50	37	41	45	33	37
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	65	75	75	57	75	75	50	75	54	45
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	58	75	60	49	75	52	43	75	45	37	71	40	33	60	35	29
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	79*	79*	77*	77*	77*	72	80*	80*	80*	79*	75	60	76*	71	54
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	78*	80*	80*	72	80*	75	59	74	65	51	63	57	45	56	50	40	49	44	35
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	57	68	68	52	68	68	46	68	56	41	60	42	29
			Exposed	68	68	68	68	68	68	68	68	65	68	68	58	68	68	53	68	68	48	68	62	44	68	53	37	62	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	60	69	69	50	69	58	43	69	50	37	60	44	33	53	39	29	47	35	39
			Exposed	69	69	69	69	69	64	69	69	57	69	69	52	69	63	47	69	58	43	69	53	39	61	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	61	75	63	52	75	55	45	74	48	40	73	42	35	64	37	31
			Exposed	75	75	75	75	75	75	73	75	75	62	75	72	56	75	62	51	75	57	47	75	48	40	73	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	79*	79*	79*	78*	78*	74	77*	77*	63	76*	72	54	71	60	47	59	53	42	52	47	37
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	79*	80*	80*	75	80*	79*	72	80*	76*	62	78*	73	57	72	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	61	73	73	56	73	70	48	73	58	41	71	50	35	60	44	31	53	38	41	47	34	37
			Exposed	73	73	71	73	73	60	73	73	54	73	72	49	73	62	44	73	57	40	73	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	67	73	73	60	73	73	54	73	71	50	73	57	42	71	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	73	73	59	73	73	53	73	64	48	73	58	43	73	53	39	68	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	67	77	74	60	77	61	51	76	53	43	75	46	38	71	40	33	60	35	29	53	31	39
			Exposed	77	77	74	77	77	64	77	73	57	77	63	52	77	57	47	77	52	43	77	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	42	31	39	26
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	80	85*	85*	77	84*	80	74	78	76	61	75	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	84*	84*	80	84*	84*	76	84*	80	72	81	76	62	78	73	57	74	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31
70	B	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	53	59	59	47	59	59	42
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	54	59	59	46	59	57	40	59	49	35	59	44	31	53	39	41
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54	60	60	47	60	56	42	60	50	37
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	48	60	55	41	60	48	35	57	42	31	50	37	41	45	33	37
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65	75*	72*	57	75*	61	50	74*	54	45
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72*	75*	73*	58	75*	60	49	75*	52	43	75*	45	37	71*	40	33	60	35	29
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	76*	76*	76*	75*	75*	72*	74*	74*	60	73*	71*	54
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	72*	77*	75*	59	74*	65	51	63	57	45	56	50	40	49	44	35
	C	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	57	59	59	42	59	52	37	59	46	33	56	41	29
			Exposed	59	59	59	59	59	59	59	59	58	59	59	53	59	59	48	59	59	44	59	53	37	59	45	32	54	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	58	43	60	50	37	60	44	33	53	39	29	47	35	39
			Exposed	60	60	60	60	60	60	60	60	57	60	60	52	60	60	47	60	58	43	60	53	39	60	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	75*	75*	61	75*	63	52	74*	55	45	73*	48	40	72*	42	35	64	37	31
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	62	75*	72*	56	75*	62	51	75*	57	47	75*	48	40	73*	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	74*	77*	74*	63	73*	72*	54	71*	60	47	59	53	42	52	47	37
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	75*	77*	77*	72*	77*	76*	62	77*	73*	57	72*	60	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37			
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	65	56	65	65	48	65	58	41	65	50	35	60	44	31	53	38	41	47	34	37
			Exposed	65	65	65	65	65	60	65	65	54	65	65	49	65	62	44	65	57	40	65	52	37	60	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	60	66	66	54	66	66	50	66	57	42	66	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	66	66	59	66	66	53	66	64	48	66	58	43	66	53	39	66	48	36	60	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	74	77*	77*	67	77*	74	60	77*	61	51	74*	53	43	73	46	38	71	40	33	60	35	29	53	31	39
			Exposed	77*	77*	74	77*	77*	64	77*	73	57	77*	63	52	77*	57	47	77*	52	43	77*	47	39	72	40	33	59	35	29	51	30	37	44	40	33	39	35	42	31	39	26
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	77*	77*	77*	74*	76*	76*	61	74*	67	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	79*	79*	79*	79*	79*	76*	79*	79*	72	79*	76*	62	78*	73*	57	75*	65	52	71	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31
80	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	42
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	39	52	39	41
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	47	53	53	42	53	50	37
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	41	45	33	37
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	65*	72*	72*	57	72*	61	50	72*	54	45
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	58	72*	60	49	72*	52	43	72*	45	37	71*	40	33	60	35	29
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	74*	73*	73*	72*	72*	72*	60*	69*	69*	54
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72*	75*	75*	59*	74*	65*	51	63*	57	45	56	50	40	49	44	35
	C	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	42	52	52	37	52	46	33	52	41	29
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	44	52	52	37	52	45	32	52	39	42	47	34	37	41	30	32	37	41	29
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	43	53	50	37	53	44	33	53	39	29	47	35	39
			Exposed	53	53	53	53	53	53	53	53	53	53	53	52	53	53	47	53	53	43	53	53	39	53	45	33	52	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	61	72*	63*	52	72*	55	45	70*	48	40	67*	42	35	64*	37	31
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	62*	72*	72*	56	72*	62*	51	72*	57	47	72*	48	40	72*	41	34	61	36	30	53	31	39	47	42	35	42	37	31
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	74*	74*	73*	73*	73*	72*	72*	63*	72*	72*	63*	66*	60*	47	59*	53	42	52	47	37
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72*	75*	75*	62*	74*	73*	57	72*	61*	48	58	52	41	50	45	36	44	39	31	39	35	42	34	31	37
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	48	57	57	41	57	50	35	57	44	31	53	38	41	47	34	37
			Exposed	57	57	57	57	57	57	57	57	54	57	57	49	57	57	44	57	57	40	57	52	37	57	44	31	52	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	50	58	57	42	58	49	36	58	42	31	50	37	41	44	32	36	39	29	32
			Exposed	58	58	58	58	58	53	58	58	48	58	58	43	58	53	39	58	48	36	58	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	67	74*	74*	60	74*	61	51	73*	53	43	72*	46	38	71*	40	33	60	35	29	53	31	39
			Exposed	74*	74*	74*	74*	74*	64	74*	73*	57	74*	63	52	74*	57	47	74*	52	43	74*	47	39	72*	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	76*	76*	75*	75*	75*	75*	74*	73*	73*	61	72*	68*	52	64	57	45	56	50	40	49	44	35	44	39	31
			Exposed	77*	77*	77*	77*	77*	76*	77*	77*	72*	77*	76*	62	76*	73*	57	74*	65*	52	71*	59	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31

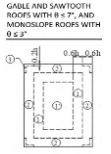
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

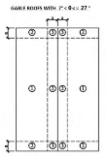
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

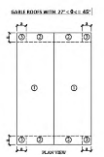
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

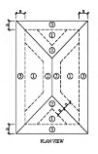












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

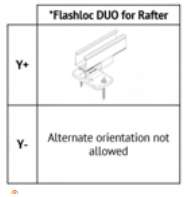
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	35	46	44	31	46	39	41
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	37
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	35	47	42	31	47	37	41	45	33	37
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	57*	65*	61*	50	65*	54	45		
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	58*	65*	60*	49	65*	52	43	65*	45	37	65*	40	33	60*	35	29		
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	69*	69*	69*	66*	66*	60*	64*	64*	54*		
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	59*	71*	65*	51	63*	57*	45	56*	50	40	49	44	35		
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	37	46	46	33	46	41	29
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37	46	45	32	46	39	42	46	34	37	41	30	32	37	41	29
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	37	47	44	33	47	47	39	29	47	35	39		
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	39	47	45	33	47	38	28	45	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	61*	65*	63*	52	65*	55	45	64*	48	40	62*	42	35	60*	37	31		
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	56*	65*	62*	51	65*	57*	47	65*	48	40	65*	41	34	61*	36	30	53	31	39	47	42	35	42	37	31		
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	67*	67*	63*	64*	64*	54*	61*	60*	47	59*	53*	42	52	47	37		
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	62*	72*	72*	57*	71*	60*	48	58*	52	41	50	45	36	44	39	31	39	35	42	34	31	37		
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	51	50	35	51	44	31	51	38	41	47	34	37
			Exposed	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	40	51	51	40	51	51	37	51	44	31	51	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	42	52	49	36	52	42	31	50	37	41	44	32	36	39	29	32
			Exposed	52	52	52	52	52	52	52	52	48	52	52	43	52	52	39	52	48	36	52	44	33	51	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	67*	71*	71*	60	71*	61*	51	71*	53	43	68*	46	38	65*	40	33	58	35	29	53	31	39		
			Exposed	71*	71*	71*	71*	71*	64*	71*	71*	57	71*	63*	52	71*	57	47	71*	52	43	71*	47	39	71*	40	33	59	35	29	51	30	37	44	40	33	39	35	29	35	31	26		
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	73*	73*	73*	73*	73*	71*	71*	61*	68*	67*	52	64*	57	45	56	50	40	49	44	35	44	39	31		
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	62*	74*	73*	57	73*	65*	52	71*	60*	47	56	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31		
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	35	42	42	31	42	39	41
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	37
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	31	43	37	41	43	33	37
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	59*	50*	59*	54*	45		
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	49	59*	52*	43	59*	45	37	59*	40	33	59*	35	29		
		27-45	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	64*	64*	64*	62*	62*	60*	60*	60*	54*		
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	59*	66*	65*	51*	63*	57*	45	56*	50*	40	50*	44	35		
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	33	42	41	29
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	39	42	42	34	37	41	30	32	37	41	29
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	33	43	43	39	29	43	35	39
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	33	43	38	28	43	33	37	40	29	33	35	39	29	31	34	26
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	52*	59*	59*	52*	59*	55*	45	59*	48	40	58*	42	35	56*	37	31		
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	59*	59*	51*	59*	57*	47	59*	48	40	59*	41	34	59*	36	30	53*	31	39	47	42	35	42	37	31			
		27-45	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	65*	65*	65*	62*	62*	62*	60*	60*	54*	57*	57*	48*	55*	53*	42	52*	47	37		
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62*	66*	66*	57*	65*	60*	48*	58*	52*	41	50*	45	36	44	39	31	39	35	42	34	31	37		
	D	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	35	46	46	44	31	46	38	41
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	46	37	46	44	31	46	38	40	45	33	35	39	29	31	34	38	27	31	34	24
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	36	47	42	31	47	37	41	44	32	36	39	29	32
			Exposed	47	47	47	47	47	47	47	47	47	47	47	43	47	47	39	47	47	36	47	44	33	47	37	42	44	32	36	38	42	31	33	37	27	29	32	24	39	29	21
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	60*	65*	61*	51	65*	53	43	63*	46	38	61*	40	33	59*	35	29	52	31	39		
			Exposed	65*	65*	65*	65*	65*	64*	65*	65*	57*	65*	63*	52	65*	57*	47	65*	52	43	65*	47	39	65*	40	33	59*	35	29	51	30	37	44	40	33	39	35	29	35	31	26		
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	71*	71*	70*	70*	70*	67*	67*	61*	63*	63*	52	60*	57*	45	56*	50	40	49	44	35	44	39	31		
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	62*	72*	72*	57*	71*	65*	52	70*	59*	47	56*	50	40	48	43	34	42	38	30	37	33	39	32	29	35	29	39	31		

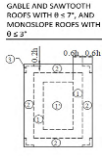
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

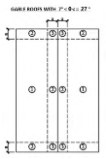
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

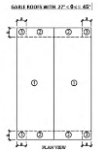
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

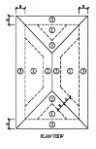












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

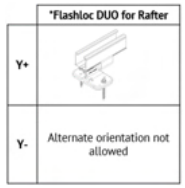
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	79	81	81	76	81	81	73	81	80	68	81	77	58	81	72	44	77	58	35	72	47	30	62	38	27	51	33	23	43	29	21
			Exposed	81	81	73	81	79	65	81	75	54	81	72	46	79	66	40	76	57	35	74	50	32	63	39	27	50	32	23	40	28	20	34	24	17	30	22	23	26	19	21
		7-20	Interior	81	81	81	81	81	81	81	81	77	81	81	74	81	80	71	81	77	59	81	74	50	80	64	37	74	47	31	66	37	27	51	32	23	40	28	21	34	25	18
			Exposed	81	80	70	81	77	56	81	73	46	80	66	38	77	55	34	74	46	31	71	40	28	52	32	24	39	27	20	32	24	18	28	21	23	25	18	20	22	24	18
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	77	82	80	74	82	77	71	82	72	52	82	56	39	77	42	32	73	34	28	65	30	25	53	27	22
			Exposed	82	82	77	82	80	73	82	76	67	82	73	54	82	65	45	82	54	38	79	46	34	74	35	29	63	30	24	50	26	21	40	22	18	34	20	25	30	17	22
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	76	82	77	71	78	72	53	73	60	41	63	48	34	49	39	30	39	34	27
			Exposed	82	82	82	82	82	78	82	81	75	82	78	72	81	75	61	77	72	52	75	65	44	64	49	34	47	38	29	36	32	25	31	28	22	28	25	20	25	22	17
	C	0-7	Interior	81	81	74	81	81	77	60	81	74	50	81	71	43	78	62	37	75	54	34	69	42	28	54	34	24	43	30	21	36	26	18	31	23	24	28	20	22		
			Exposed	81	71	43	77	60	36	74	51	32	71	44	29	61	38	26	53	34	24	46	31	22	36	26	18	31	22	24	27	19	21	23	17	18	20	23	16	18	20	14
		7-20	Interior	81	81	73	81	78	62	81	75	51	81	72	42	79	61	36	76	51	32	73	44	30	58	34	25	43	29	21	34	25	19	30	22	24	26	19	22	23	17	19
			Exposed	79	61	35	75	49	32	72	41	28	60	35	26	50	31	23	42	29	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	82	82	79	82	81	75	82	78	72	82	74	61	82	71	50	82	60	42	81	51	36	75	37	30	69	31	26	54	27	22	44	24	20	36	21	17	32	18	23
			Exposed	82	71	50	82	58	40	79	47	34	76	39	31	73	34	28	68	31	26	58	28	23	44	24	20	35	20	17	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	82	82	82	82	82	80	82	82	76	82	79	73	82	76	68	79	74	57	76	71	49	71	53	37	52	42	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	82	76	67	78	73	55	75	66	45	72	56	38	61	47	34	51	41	31	43	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	17	23	18
	D	0-7	Interior	81	78	63	81	75	53	81	72	44	78	63	38	75	54	34	73	47	31	67	41	28	52	33	24	41	29	20	34	25	17	30	22	23	26	19	20	23	17	18
			Exposed	75	54	33	72	46	30	63	39	27	54	34	24	46	31	22	40	28	20	35	26	18	30	22	23	26	19	20	22	24	17	19	21	15	17	19	13	23	17	12
		7-20	Interior	81	76	55	81	73	44	80	63	37	76	52	33	73	44	30	67	37	27	56	33	25	41	28	21	33	24	18	29	21	23	25	18	20	22	24	18	19	22	16
			Exposed	73	43	29	64	36	26	52	32	24	43	29	21	36	26	19	33	24	18	30	22	24	25	18	21	22	24	18	19	21	15	25	18	13	22	16	12	19	14	10
		20-27	Interior	82	79	73	82	75	64	82	72	52	82	61	43	81	51	36	78	43	33	75	36	30	66	30	25	51	26	22	40	23	19	34	20	25	30	17	22	26	23	19
			Exposed	80	50	36	77	41	32	73	35	28	69	31	26	58	28	23	50	26	21	43	24	19	34	20	25	29	17	21	25	22	18	22	20	16	19	17	14	17	15	13
		27-45	Interior	82	82	78	82	80	74	82	77	70	80	74	58	76	71	49	73	60	42	70	52	36	50	40	30	37	33	26	32	28	22	28	25	20	24	22	17	22	19	23
			Exposed	76	71	48	73	58	40	64	49	34	52	41	31	43	35	28	36	32	26	33	30	23	28	25	20	24	21	17	21	19	22	18	25	19	24	22	17	21	19	15
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	76	76	68	76	76	58	76	72	44	76	58	35	72	47	30	62	38	27	51	33	23	43	29	21
			Exposed	76	76	73	76	76	65	76	75	54	76	72	46	76	66	40	76	57	35	74	50	32	63	39	27	50	32	23	40	28	20	34	24	17	30	22	23	26	19	21
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	59	76	74	50	76	64	37	74	47	31	66	37	27	51	32	23	40	28	21	34	25	18
			Exposed	76	76	70	76	76	56	76	73	46	76	66	38	76	55	34	74	46	31	71	40	28	52	32	24	39	27	20	32	24	18	28	21	23	25	18	20	22	24	18
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	77	71	79	72	52	79	56	39	77	42	32	73	34	28	65	30	25	53	27	22
			Exposed	79	79	77	79	79	73	79	76	67	79	73	54	79	65	45	79	54	38	79	46	34	74	35	29	63	30	24	50	26	21	40	22	18	34	20	25	30	17	22
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	77	71	78	72	53	73	60	41	63	48	34	49	39	30	39	34	27
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	61	77	72	52	75	65	44	64	49	34	47	38	29	36	32	25	31	28	22	28	25	20	25	22	17
	C	0-7	Interior	76	76	74	76	76	71	76	76	60	76	74	50	76	71	43	76	62	37	75	54	34	69	42	28	54	34	24	43	30	21	36	26	18	31	23	24	28	20	22
			Exposed	76	71	43	76	60	36	74	51	32	71	44	29	61	38	26	53	34	24	46	31	22	36	26	18	31	22	24	27	19	21	23	17	18	20	23	16	18	20	14
		7-20	Interior	76	76	73	76	76	62	76	75	51	76	72	42	76	61	36	76	51	32	73	44	30	58	34	25	43	29	21	34	25	19	30	22	24	26	19	22	23	17	19
			Exposed	76	61	35	75	49	32	72	41	28	60	35	26	50	31	23	42	29	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	79	79	79	79	79	75	79	78	72	79	74	61	79	71	50	79	60	42	79	51	36	75	37	30	69	31	26	54	27	22	44	24	20	36	21	17	32	18	23
			Exposed	79	71	50	79	58	40	79	47	34	76	39	31	73	34	28	68	31	26	58	28	23	44	24	20	35	20	17	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	81	81	81	81	81	80	81	81	76	81	79	73	81	76	68	79	74	57	76	71	49	71	53	37	52	42	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	81	76	67	78	73	55	75	66	45	72	56	38	61	47	34	51	41	31	43	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	17	23	18
	D	0-7	Interior	76	76	63	76	75	53	76	72	44	76	63	38	75	54	34	73	47	31	67	41	28	52	33	24	41	29	20	34	25	17	30	22	23	26	19	20	23	17	18
			Exposed	75	54	33	72	46	30	63	39	27	54	34	24	46	31	22	40	28	20	35	26	18	30	22	23	26	19	20	22	24	17	19	21	15	17	19	13	23	17	12
		7-20	Interior	76	76	76	76	76	76	76	76	66	76	76	38	76	55	34	74	46	31	71	40	28	52	32	24	39	27	20	32	24	18	28	21	23	25	18	20	22	24	18
			Exposed	76	76	70	76	76	56	76	73	46	76	67	38	76	55	34	74	46	31	71	40	28	52	32	24	39	27	20	32	24	18	28	21	23	25	18	20	22	24	18
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	77	71	79	72	52	79	56	39	77	42	32	73	34	28	65	30	25	53	27	22
			Exposed	79	79	77	79	79	73	79	76	67	79	73	54	79	65	45	79	54	38	79	46	34	74	35	29	63	30	24	50	26	21	40	22	18	34	20	25	30	17	22
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	77	71	78	72	53	73	60	41	63	48	34	49	39	30	39	34	27
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	61	77	72	52	75	65	44	64	49	34	47	38	29	36	32	25	31	28	22	28	25	20	25	22	17
	C	0-7	Interior	76	76	74	76	76	71	76	76	60	76	74	50	76	71	43	76	62	37	75	54	34	69	42	28	54	34	24	43	30	21	36	26	18	31	23	24	28	20	22
			Exposed	76	71	43	76	60	36	74	51	32	71	44	29	61	38	26	53	34	24	46	31	22	36	26	18	31	22	24	27	19	21	23	17	18	20	23	16	18	20	14
		7-20	Interior	76	76	73	76	76	76	76	75	51	76	72	42	76	61	36	76	51	32	73	44	30	58	34	25	43	29	21	34	25	19	30	22	24	26	19	22	23	17	19
			Exposed	76	61	35	75	49	32	72	41	28	60	35	26	50	31	23	42	29	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	79	79	79	79	79	75	79	78	72	79	74	61	79	71	50	79	60	42	79	51	36	75	37	30	69	31	26	54	27	22	44	24	20	36	21	17	32	18	23
			Exposed	79	71	50	79	58	40	79	47	34	76	39	31	73	34	28	68	31	26	58	28	23	44	24	20	35	20	17	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	81	81	81	81	81	80	81	81	76	81	79	73	81	76	68	79	74	57	76	71	49	71	53	37	52	42	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	81	76	67	78	73	55	75	66	45	72	56	38	61	47	34	51	41	31	43	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	17	23	18
	D	0-7	Interior	76	76	63	76	75	53	76	72	44	76	63	38	75	54	34	73	47	31	67	41	28	52	33	24	41	29	20	34	25	17	30	22	23	26	19	20	23	17	18
			Exposed	75	54	33	72	46	30	63	39	27	54	34	24	46	31	22	40	28	20	35	26	18	30	22	23	26	19	20	22	24	17	19	21	15	17	19	13	23	17	12
		7-20	Interior	76	76	76	76	76	76	76	76	66	76	76	38	76	55	34	74	46	31	71	40	28	52	32	24	39	27	20	32	24	18	28	21	23	25	18	20	22	24	18
			Exposed	76	76	70	76	76	56	76	73	46	76	67	38	76	55	34	74	46	31	71	40	28	52	32	24	39	27	20	32	24	18	28	21	23	25	18	20	22	24	18
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	77	71	79	72	52	79	56	39	77	42	32	73	34	28	65	30	25	53	27	22
			Exposed	79	79	77	79	79	73	79	76	67	79	73	54	79	65	45	79	54	38	79	46	34	74	35	29	63	30	24	50	26	21	40	22	18	34	20	25	30	17	22
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	76	81	77	71	78	72	53	73	60	41	63	48	34	49	39	30	39	34	27
			Exposed	81	81	81	81	81	78	81	81	75	81	78	72	81	75	61	77	72	52	75	65	44	64	49	34	47	38	29	36	32	25	31	28	22	28	25	20	25	22	17
20	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	58	64	64	44	64	58	35	64	47	30	62	38	27	51	33	23	43	29	21
			Exposed	64	64	64	64	64	64	64	64	54	64	64	46	64	64	40	64	57	35	64	50	32	63	39	27	50	32	23	40	28	20	34	24	17	30	22	23	26	19	21
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	64	50	64	64	37	64	47	31	64	37	27	51	32	23	40	28	21	34	25	18
			Exposed	64	64	64	64	64	56	64	64	46	64	64	38	64	55	34	64	46	31	64	40	28	52	32	24	39	27	20	32	24	18	28	21	23	25	18	20	22	24	18
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	72	52	73	56	39	73	42	32	73	34	28	65	30	25	53	27	22
			Exposed	73	73	73	73	73	73	73	73	67	73	73	54	73	65	45	73	54	38	73	46	34	73	35	29	63	30	24	50	26	21	40	22	18	34	20	25	30	17	22
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	71	76	72	52	73	60	41	63	48	34	49	39	30	39	34	27
			Exposed	76	76	76	76	76	76	76	76	75	76	76	72	76	75	61	76	72	52	75	65	44	64	49	34	47	38	29	36	32	25	31	28	22	28	25	20	25	22	17
	C	0-7	Interior	64	64	64	64	64	64	64	64	60	64	64	50	64	64	43	64	62	37	64	54	34	64	42	28	54	34	24	43	30	21	36	26	18	31	23	24	28	20	22
			Exposed	64	64	43	64	60	36	64	51	32	64	44	29	61	38	26	53	34	24	46	31	22	36	26	18	31	22	24	27	19	21	23	17	18	20	23	16	18	20	14
		7-20	Interior	64	64	64	64	64	62	64	64	51	64	64	42	64	61	36	64	51	32	64	44	30	58	34	25	43	29	21	34	25	19	30	22	24	26	19	22	23	17	19
			Exposed	64	61	35	64	49	32	64	41	28	60	35	26	50	31	23	42	29	21	36	26	19	30	22	25	26	19	21	22	25	18	20	22	16	17	19	14	23	17	13
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	61	73	71	50	73	60	42	73	51	36	73	37	30	69	31	26	54	27	22	44	24	20	36	21	17	32	18	23
			Exposed	73	71	50	73	58	40	73	47	34	73	39	31	73	34	28	68	31	26	58	28	23	44	24	20	35	20	17	30	18	22	26	23	19	23	21	17	21	18	15
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	73	76	76	68	76	76	68	76	74	57	76	71	49	71	53	37	52	42	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	76	76	67	76	73	55	75	66	45	72	56	38	61	47	34	51	41	31	43	35	28	33	30	24	29	26	20	25	22	18	22	19	23	19	17	21	17	23	18
	D	0-7	Interior	64	64	63	64	64	53	64	64	44	64	63	38	64	64	34	64	47	31	64	41	28	52	33	24	41	29	20	34	25	17	30	22	23	26	19	20	23	17	18
			Exposed	64	54	33	64	46	30	63	39	27	54	34	24	46	31	22	40	28	20	35	26	18	30	22	23	26	19	20	22	24	17	19	21	15	17	19	13	23	17	12
		7-20	Interior	64	64	55	64	64	44	64	63	37	64	52	33	64	44	30	64	37	27	56	33	25	41	28	21	33	24	18	29	21	23	25	18	20	22	24	18	19	22	16
			Exposed	64	43	29	64	36	26	52	32	24	43	29	21	36	26	19	33	24	18	30	22	24	25	18	21	22	24	18	19	21	15	25	18	13	22	16	12	19	14	10
		20-27	Interior	74	74	73	74	74	64	74	72	52	74	61	43	74	51	36	74	43	33	74	36	30	66	30	25	51	26	22	40	23	19	34	20	25	30	17	22	26	23	19
			Exposed	74	50	36	74	41	32	73	35	28	69	31	26	58	28	23	50	26	21	43	24	19	34	20	25	29	17	21	25	22	18	22	20	16	19	17	14	17	15	13
		27-45	Interior	77	77	77	77	77	77	77	77	70	77	74	58	76	71	49	73	60	42	70	52	36	50	40	30	37	33	26	32	28	22	28	25	20	24	22	17	22	19	23
			Exposed	76	71	48	73	58	40	64	49	34	52	41	31	43	35	28	36	32	26	33	30	23	28	25	20	24	21	17	21	19	22	18	25	19	24	22	17	21	19	15

* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.



**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

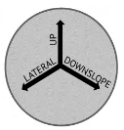
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

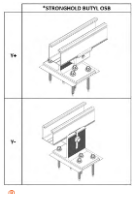
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	33	34	34	29	34	34	26	34	34	23	34	30	21	34	27	19	34	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	34	30	21	34	27	19	33	24	17	30	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	34	34	29	34	34	25	34	31	23	34	28	20	34	25	18	32	23	17	29	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	34	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	35	35	35	35	35	31	35	34	28	35	30	25	35	27	22	35	25	20	35	23	18	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	35	27	22	35	24	20	35	22	18	34	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	35	35	35	35	35	33	35	35	30	35	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	8
			Exposed	35	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	34	32	22	34	28	20	34	25	18	32	23	16	29	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	34	27	19	33	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	35	29	24	35	26	21	35	23	19	35	21	17	33	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	35	35	28	35	32	25	32	29	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	34	26	18	33	23	16	29	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	5	5	4	5	4	4
		7-20	Interior	31	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	35	24	19	35	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	9	5	4	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
10	B	0-7	Interior	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	27	19	28	25	17	28	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	28	28	21	28	27	19	28	24	17	28	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	28	28	28	28	28	25	28	28	23	28	28	20	28	25	18	28	23	17	28	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	32	32	32	32	32	31	32	32	28	32	30	25	32	27	22	32	25	20	32	23	18	32	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	32	27	22	32	24	20	32	22	18	32	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9
			Exposed	34	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	28	28	22	28	28	20	28	25	18	28	23	16	28	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	28	27	19	28	24	17	28	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	32	29	24	32	26	21	32	23	19	32	21	17	32	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	34	34	28	34	34	32	34	34	30	34	34	27	34	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	12	9	8
			Exposed	28	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	28	26	18	28	23	16	28	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	28	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	33	24	19	33	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	9	5	4	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
20	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	15	20	18	12	20	15	11	18	13	9	16	12	8	14	10	7
			Exposed	20	20	20	20	20	19	20	20	17	20	20	15	20	19	13	20	17	12	20	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	15	21	18	13	21	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	23	18	25	19	16	25	16	13	24	14	11	21	12	10	18	11	9	16	9	8	14	8	7
			Exposed	25	25	22	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	8
			Exposed	28	28	27	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	20	20	14	20	18	13	20	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	21	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	25	25	24	25	25	21	25	23	19	25	21	17	25	19	15	25	17	14	25	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	25	18	15	25	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	22	28	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	20	17	12	20	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	21	21	16	21	19	14	21	17	13	21	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	26	24	19	26	21	17	26	19	15	26	17	14	26	15	13	24	14	11	22	13	10	19	11	9	14	8	6	12	7	6	10	6	5	9	5	4	6	5	4
			Exposed	26	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5

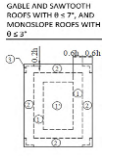
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

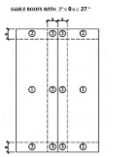
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

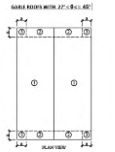
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

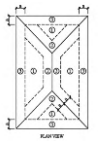












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

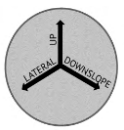
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

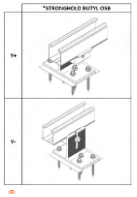
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	16	15	11	16	13	9	16	12	8	14	10	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	16	11	16	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	13	9	15	11	8	13	10	7	12	9	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16	21	16	13	21	14	11	21	12	10	18	11	9	16	9	8
			Exposed	21	21	21	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	22	20	16	20	17	14	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	16	16	14	16	16	13	16	16	11	16	15	10	16	13	9	16	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	11	16	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	17	14	21	15	13	21	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	23	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	6	4
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
40	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	11	15	13	9	15	12	8	14	10	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6	10	7	5	9	6	7	8	6	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	9	15	11	8	13	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13	17	14	11	17	12	10	17	11	9	16	9	8
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	12	10	17	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	18	17	14	17	15	12	15	13	10	13	12	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	14	17	15	13	17	13	11	17	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	20	20	18	20	20	16	20	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	6	4
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
50	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	8	13	10	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	11	13	13	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10	15	11	9	14	9	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	10	15	10	9	15	9	7	14	8	6	12	7	6	10	6	5	9	7	7
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16	16	16	14	16	15	12	15	13	10	13	12	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	8	13	10	7	13	9	6	11	8	5	10	7	5
			Exposed	13	13	13	13	13	11	13	13	10	13	13	9	13	12	8	13	11	8	13	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	13	13	12	13	13	10	13	12	9	13	11	8	13	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	6	7	4	6	7	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	13	11	15	11	9	14	9	8	14	8	7	13	7	6	11	6	5	9	5	7
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	15	16	16	13	15	14	11	13	12	9	12	10	8	10	9	7	9	8	6	8	7	6
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	14	14	12	14	14	10	14	13	9	14	12	8	14	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	6	4
		20-27	Interior	16	16	16	16	16	16	16	16	16	14	16	15	13	16	14	11	16	13	10	16	11	9	15	9	7	14	8	6	12	7	6	10	6	5	9	5	7	6	5
			Exposed	16	15	13	16	14	11	16	12	10	16	11	9	16	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	17	18	18	15	17	17	14	17	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	19	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5

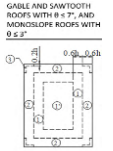
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

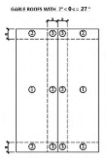
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

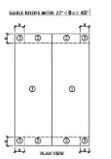
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

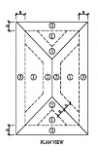












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

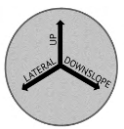
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

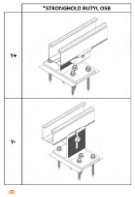
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6	10	7	5	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	11	9	13	9	8			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	9	13	9	7	13	8	6	12	7	6	10	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	12	13	13	10	13	12	9			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	6	9	7	11	9	6	10	8	6			
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	12	8	7	12	7	6	11	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	11	6	5	9	5	7	8	7	6	11	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	4	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	9	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	13	10	14	11	9	14	9	7	13	8	6	12	7	6	10	6	5	9	5	7
			Exposed	14	14	13	14	14	11	14	12	10	14	11	9	14	10	8	14	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	16	16	15	16	16	14	15	15	13	14	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	17	17	15	17	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
70	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7		
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	7		
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	9	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	9	12	9	7	12	8	6	12	7	6	10	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	12	12	12	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	5	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	6	9	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	8	6	9	7	5	8	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	7	9	9	7	9	9	7	9	8	6	9	7	5	8	6	6	7	5	5	6	7	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	11	12	12	11	12	12	10	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	11	6	5	9	5	7	8	7	6	11	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	12	12	10	12	12	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	5	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	7	10	8	6	10	7	5	9	6	7	8	5	5	7	5	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	12	12	9	12	9	7	12	8	6	11	9	7	10	6	5	9	5	7
			Exposed	13	13	13	13	13	11	13	13	11	13	13	9	13	13	10	13	13	9	13	11	8	12	12	7	10	8	6	10	6	5	9	5	6	8	7	6	7	6	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	13	13	13	11	12	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	7	5	5	6	5	7	5	5	5
80	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7		
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6		
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	8	6	10	7	6	10	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	10	11	11	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	11	9	11	11	8	10	9	7	9	8	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	7	5	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	9	10	9	8	10	8	7	10	7	6	9	6	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	6	5	9	5	7	8	7	6	8	6	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	11	11	11	11	11	11	9	10	10	8	10	9	7	9	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6	4
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	8	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	8	9	9	8	9	9	6	9	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	8	6	9	7	5	8	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	7	9	9	7	9	8	6	9	7	5	8	6	6	7	5	5	6	7	4
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	6	10	6	5	9	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	13	12	12	11	11	11	9	10	10	8	10	9	7	9	8	6	8	7	5
			Exposed	14	14	14	14	14	13	14	14	12	14	14	11	13	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

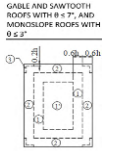
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

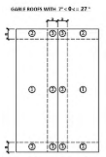
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

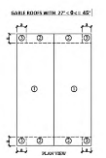
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

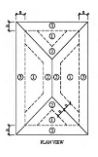












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

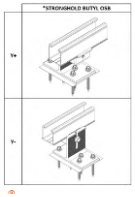
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7			
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	6	9	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	10	10	10	10	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7	7	6	6	7	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	6	5	9	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	9	8	6	
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6			
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	7	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	8	6	8	5	6	7	5	5	6	6	4			
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	5	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	8	6	7	7	5	6	6	5	6	5	5	5	4	7	5	5	
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	6	9	6	5	9	5	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	8	6	10	7	6	9	5	6	8	7	6	7	6	5	7	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	11	11	11	11	9	10	10	8	10	9	7	8	8	6	7	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	12	12	10	12	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	6	5	5
100	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	7	6	7	7	6	6
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	6	8	6	5	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6	8	7	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	6	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	6	9	7	6	9	6	5	8	5	7	8	5	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	8	7	9	7	6	9	6	5	9	5	6	8	7	6	7	6	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	8	8	6	7	7	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	9	11	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

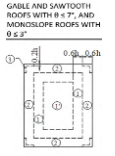
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

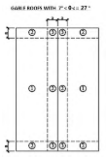
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

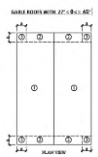
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

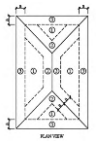












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

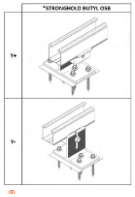
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	57	57	55	57	57	49	57	57	44	57	57	39	57	51	35	57	46	32	57	42	29	49	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	57	51	35	57	45	31	56	40	28	50	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	57	57	48	57	57	43	57	53	38	57	47	34	57	43	31	54	39	28	49	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	57	42	31	52	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	58	58	58	58	58	52	58	57	46	58	51	42	58	46	38	58	42	34	58	38	31	56	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	58	46	38	58	41	33	58	36	30	57	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	59	59	59	59	59	59	59	59	56	59	59	50	59	58	45	59	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	59	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	57	54	37	57	48	33	57	43	30	54	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	48	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	57	45	33	56	40	29	50	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	58	49	40	58	43	35	58	39	32	58	35	28	55	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	55	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	59	59	48	59	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	57	44	31	55	39	27	49	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	52	37	27	46	33	24	41	29	22	37	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	58	40	33	58	36	29	56	32	26	50	29	24	45	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	45	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	56	50	39	50	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
10	B	0-7	Interior	46	46	46	46	46	46	46	46	44	46	46	39	46	46	35	46	46	32	46	42	29	46	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	46	46	35	46	45	31	46	40	28	46	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	47	47	47	47	47	43	47	47	38	47	47	34	47	43	31	47	39	28	47	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	47	42	31	47	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	53	53	53	53	53	52	53	53	46	53	51	42	53	46	38	53	42	34	53	38	31	53	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	53	46	38	53	41	33	53	36	30	53	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	57	57	57	57	57	57	57	57	56	57	57	50	57	57	45	57	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	57	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	46	46	37	46	46	33	46	43	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	46	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	47	45	33	47	40	29	47	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	53	49	40	53	43	35	53	39	32	53	35	28	53	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	53	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	57	57	48	57	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	46	44	31	46	39	27	46	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	47	37	27	47	33	24	41	29	22	37	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	55	40	33	55	36	29	55	32	26	50	29	24	45	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	45	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	56	50	39	50	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
20	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	25	34	30	21	34	26	18	31	23	16	27	20	14	24	17	12
			Exposed	34	34	34	34	34	31	34	34	28	34	34	25	34	33	23	34	30	21	34	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	26	35	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	35	35	31	35	35	28	35	34	25	35	30	22	35	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	38	31	42	32	26	42	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	42	42	38	42	41	33	42	36	30	42	33	27	42	30	24	42	27	22	42	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	47	47	45	47	47	40	47	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	34	34	34	34	34	33	34	34	30	34	34	27	34	34	24	34	31	22	34	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	34	34	24	34	31	21	34	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	35	35	33	35	35	29	35	35	26	35	32	23	35	29	21	35	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	35	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	42	42	40	42	42	35	42	39	32	42	35	28	42	31	26	42	28	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	42	31	26	42	28	23	42	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	34	34	31	34	34	27	34	34	25	34	32	22	34	29	20	34	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	34	28	20	34	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	35	35	27	35	33	24	35	29	22	35	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	44	40	33	44	36	29	44	32	26	44	29	24	44	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	44	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	48	48	39	48	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

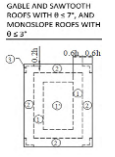
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

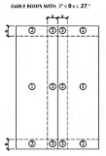
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

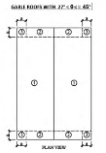
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

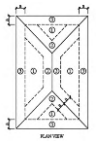












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

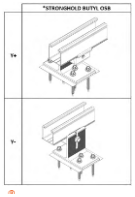
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	26	18	27	23	16	27	20	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	27	19	27	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	25	19	27	22	16	26	19	14	23	17	12	20	15	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	25	18	27	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	32	26	35	27	22	35	24	19	35	20	17	31	18	15	28	16	13	25	16	13
			Exposed	35	35	35	35	35	33	35	35	30	35	33	27	35	30	24	35	27	22	35	25	20	35	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	37	39	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	39	39	39	39	39	39	39	39	36	39	39	32	39	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	12	21	17	11	19	14	10	17	12	8			
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	24	18	27	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	27	27	21	27	26	19	27	23	17	27	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	35	35	35	35	35	35	35	35	32	35	35	28	35	31	26	35	28	23	35	26	21	35	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	35	31	26	35	28	23	35	25	20	35	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	38	39	39	34	39	39	31	38	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	39	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	6	
		20-27	Interior	36	36	33	36	36	29	36	32	26	36	29	24	36	26	21	36	24	19	36	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	36	26	21	36	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	41	41	39	41	41	35	41	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	23	16	25	20	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	25	19	25	23	16	25	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	25	19	26	22	16	26	19	14	23	17	12	20	15	11
			Exposed	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	25	18	26	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	24	19	29	20	17	29	18	15	28	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	27	22	29	25	20	29	21	17	29	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	33	33	27	31	30	23	29	26	20	25	23	18	22	20	16
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	17	25	21	14	25	18	12	21	15	11	19	14	10	17	12	8			
			Exposed	25	25	24	25	25	21	25	25	19	25	25	17	25	22	16	25	20	14	25	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	24	18	26	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	26	26	21	26	26	19	26	23	17	26	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	26	29	28	23	29	26	21	29	22	18	29	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	29	29	26	29	28	23	29	25	20	29	22	18	29	20	17	29	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11			
			Exposed	34	34	31	34	34	27	34	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	6	
		20-27	Interior	31	31	31	31	31	31	31	31	26	31	29	24	31	26	21	31	24	19	31	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	31	26	21	31	23	19	31	21	17	31	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	36	36	36	36	36	35	36	36	31	35	35	28	34	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
50	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	20	14	22	17	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	16	22	22	19	22	22	18	22	19	14	22	17	12	20	15	11
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	16	22	19	14	22	17	12	20	15	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11			
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	24	19	26	20	17	25	18	15	24	16	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	21	17	26	18	15	23	13	11	20	12	10	18	10	9	16	9	11			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	28	28	23	26	26	20	25	23	18	22	20	16
			Exposed	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10			
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	14	22	18	12	21	15	11	19	14	10	17	12	8
			Exposed	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	20	14	22	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	20	15	22	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	22	22	22	22	22	22	22	22	17	22	21	15	22	19	14	22	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	24	16	13	23	14	12	21	12	10	19	11	9
			Exposed	26	26	26	26	26	23	26	25	20	26	22	18	26	20	17	26	18	15	26	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	28	29	29	26	27	27	22	25	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	30	30	30	30	30	27	30	30	25	30	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	23	17	23	23	20	14	23	17	12	20	15	10	18	13	9	16	11	12	14	10	11		
			Exposed	23	23	20	23	23	18	23	23	16	23	20	14	23	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	24	24	24	24	24	24	24	24	22	24	24	19	24	24	18	24	22	16	24	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	24	24	18	24	21	16	24	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	27	24	19	27	22	18	27	18	15	26	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	27	26	21	27	23	19	27	21	17	27	19	15	27	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	32	32	32	32	32	32	31	31	31	28	30	30	26	29	29	23	28	27	21	26	23	18	23	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
			Exposed	32	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

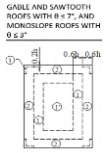
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

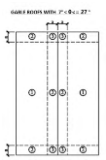
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

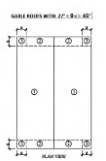
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

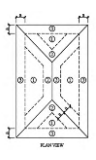












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

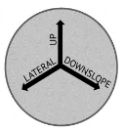
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

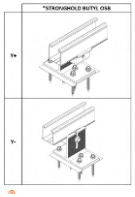
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	10	18	13	9	16	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	20	17	22	18	15	21	16	13
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	21	17	23	18	15	23	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	23	24	24	20	23	23	18	22	20	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	11	18	14	10	17	12	8
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	13	18	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	11	18	13	10	16	11	8	14	10	11
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	13	18	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	22	19	15	22	16	13	21	14	12	20	12	10	19	11	9
			Exposed	23	23	23	23	23	23	23	23	20	23	22	18	23	20	17	23	18	15	23	17	14	23	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	17	16	12	15	14	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	20	14	20	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	20	20	20	20	20	20	20	20	14	20	19	13	20	17	12	20	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	19	20	20	18	20	20	16	20	20	15	20	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	20	20	18	20	20	16	20	19	14	20	17	13	20	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	22	18	24	18	15	23	16	13	22	13	11	20	12	10	18	10	8	16	9	11
			Exposed	24	24	21	24	23	19	24	21	17	24	19	15	24	17	14	24	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	29	29	29	29	29	29	29	29	29	28	28	28	27	27	26	27	27	23	26	26	21	24	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	29	29	26	29	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
70	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	10	16	13	9	16	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	10	16	12	9	15	11	12	13	10	11
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	15	19	16	13
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	18	15	19	16	13
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	20	21	21	18	20	20	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	16	12	16	12	8
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	13	9	16	11	8	14	10	11	12	9	9	11	12	8	10	8	6
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	13	16	15	11	16	16	11	16	13	10	16	11	8
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	11	16	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	19	15	19	16	13	19	14	12	18	12	10	17	11	9
			Exposed	20	20	20	20	20	20	20	20	20	18	20	20	17	20	18	15	20	17	14	20	14	12	20	12	10	18	10	9	16	9	11	14	8	10	12	11	9	11	7
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	23	22	20	20	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	18	23	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	15	10	17	14	10	16	11	12	14	10	11
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	15	11	17	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	17	12	18	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	18	18	18	18	18	16	18	18	14	18	17	13	18	16	11	18	16	10	18	15	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	6	
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	18	15	21	16	13	20	13	11	19	12	10	18	10	8	16	9	11	
			Exposed	22	22	21	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	23	24	24	21	22	22	18	21	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	26	26	26	26	26	23	26	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
80	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	12	17	10	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	21	21	18	21	19	15	19	17	13
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	11	14	14	12	14	14	10	14	14	11	14	14	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	17	12	17	17	12	17	17	10	17	17	11	17	17	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	21	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	13	15	15	12	15	14	10	14	11	11
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7		
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	11	15	15	12	15	14	11	15	12	9	15	11	12	13	9	11
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	18	13	11	18	12	10	17	10	8	16	9	11
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	17	14	19	15	13	19	14	12	19	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	22	22	21	21	21	18	21	19	16	18	17	13	16	16	12	15	12	9	13	10	9
			Exposed	24	24	24	24	24	24	23	24	24	20	23	23	18	23	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

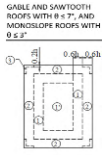
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

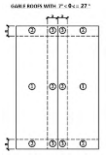
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

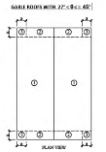
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

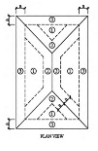












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

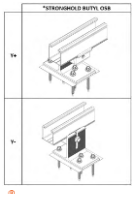
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12		
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	10	11
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	17	17	16
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	15	18	17	13	16	15	12	15	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	12	12	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	11	12	9	9	11	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	11	8	12	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	8	12	10	11	12	8	9	10	11	8	9	10	~~7~~
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	13	15	14	12	15	12	10	15	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	12	15	12	10	15	10	9	15	9	11	14	8	10	12	11	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	17	17	16	16	16	14	16	16	12	15	14	11	
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	13	9	14	11	12	14	10	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	9	14	11	12	13	10	10	11	8	9	10	11	~~8~~	9	10	~~7~~
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	12	9	14	11	12	13	9	11	12	8	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	10	14	11	12	13	9	10	11	12	9	10	11	~~8~~	8	9	~~7~~	11	8	~~6~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	16	12	10	16	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	14	12	17	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	~~7~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	19	19	18	18	18	15	17	17	13	16	15	12	14	13	10	13	11	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	21	21	17	21	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	11	11
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	12	10	14	10	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	17	17	13	16	15	12	15	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	11	11	9	9	11	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	11	11	9	9	11	12	8
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	10	14	10	9	14	9	11	14	8	10
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	14	17	15	12	15	13	10
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	10	11	8	9	10	11	~~8~~	9	10	~~7~~
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	9	12	11	12	12	9	11	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	10	12	11	12	12	9	10	11	12	9	10	11	~~8~~	8	9	~~7~~	11	8	~~6~~	10	8	~~6~~
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	8	14	9	11	15	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	12	10	15	10	8	15	9	11	13	12	10	11	10	8	11	8	10	9	~~7~~	
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	18	18	18	17	17	15	16	16	13	15	15	12	14	13	10	13	11	9			
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	19	15	19	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

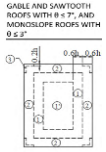
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

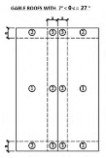
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

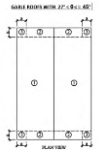
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

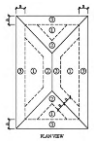












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

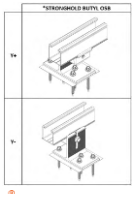
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	29	29	27	29	29	24	29	29	22	29	28	19	29	25	17	29	23	16	29	21	14	24	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	29	25	17	29	22	15	28	20	14	25	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	29	29	24	29	29	21	29	26	19	29	23	17	29	21	15	27	19	14	24	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	29	29	29	29	29	26	29	28	23	29	25	21	29	23	19	29	21	17	29	19	15	28	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	29	23	19	29	20	16	29	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	28	29	29	25	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	29	27	18	29	24	16	29	21	15	26	19	13	24	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	24	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	29	22	16	27	20	14	24	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	29	24	20	29	21	17	29	19	16	29	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
	D	0-7	Interior	29	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4	7	5	5
		7-20	Interior	26	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	29	20	16	29	18	14	28	16	13	25	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	4	5	4	3	4	3	3
		27-45	Interior	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	5	4	6	5	4	5	4	3
10	B	0-7	Interior	23	23	23	23	23	23	23	23	22	23	23	19	23	23	17	23	23	16	23	21	14	23	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	23	23	17	23	22	16	23	20	14	23	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	6	10	7	5	9	6	7	7	5	6	6	5	5
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	27	27	27	27	27	26	27	27	23	27	25	21	27	23	19	27	21	17	27	19	15	27	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	27	23	19	27	20	16	27	18	15	27	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	23	22	16	23	20	14	23	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	27	24	20	27	21	17	27	19	16	27	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
	D	0-7	Interior	23	22	15	23	19	13	23	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	23	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	27	20	16	27	18	14	22	16	13	22	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3
		27-45	Interior	24	24	19	24	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	5	4	6	5	4	5	4	3
20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	10	17	13	9	15	11	8	13	10	7	12	9	6
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	15	10	17	13	9	16	11	8	13	9	6	10	7	5	9	6	7	8	5	6	7	5	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	17	17	15	17	17	14	17	17	12	17	15	11	17	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	16	13	21	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	21	21	19	21	20	16	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	23	23	22	23	23	20	23	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	17	17	12	17	15	10	17	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	17	17	16	17	17	14	17	17	13	17	16	12	17	14	10	17	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	17	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	21	21	20	21	21	17	21	19	16	21	17	14	21	15	13	21	14	11	21	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	21	15	13	21	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	23	23	23	23	23	21	23	23	19	23	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
	D	0-7	Interior	17	17	15	17	17	13	17	17	12	17	16	11	17	14	10	17	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6	7	5	5
			Exposed	17	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	17	17	13	17	16	12	17	14	11	17	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	22	20	16	22	18	14	22	16	13	22	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3
		27-45	Interior	24	24	19	24	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	5	4	6	5	4	5	4	3

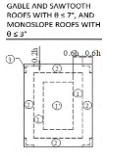
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

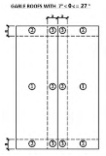
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

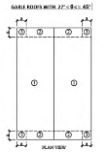
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

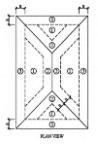












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

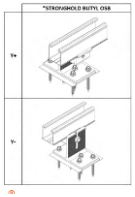
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	11	8	13	10	7	12	9	6			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	9	14	11	8	13	9	7	11	8	6	10	7	5
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	17	12	9	17	10	8	15	9	7	14	8	6
			Exposed	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	13	13	12	13	13	10	13	13	9	13	12	8	13	11	8	13	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13	17	14	11	17	13	10	17	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	17	15	13	17	14	11	17	12	10	17	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	19	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	20	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4	7	5	5
		7-20	Interior	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	14	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	18	18	16	18	18	14	18	16	13	18	14	12	18	13	10	18	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	18	13	10	18	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	4	6	5	4	5	4	3
		27-45	Interior	21	21	19	21	21	17	21	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	5	7	6	5	6	5	4	6	5	4
40	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	12	9	13	11	8	13	9	7	11	8	6	9	7	5	9	6	7	7	5	6	6	5	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	9	15	10	8	14	9	7	14	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	13	15	15	11	14	13	10	12	11	9	11	10	8
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	8	12	10	7	12	9	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	12	9	13	11	8	13	9	7	12	8	6	10	7	5	9	6	5	8	5	5
			Exposed	13	13	10	13	13	9	13	11	8	13	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	13	10	15	11	9	14	9	7	14	8	6	12	7	6	9	6	5	9	5	7
			Exposed	15	15	13	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4	7	5	5
		7-20	Interior	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	14	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	18	18	16	18	18	14	18	16	13	18	14	12	18	13	10	18	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	18	13	10	18	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	4	6	5	4	5	4	3
		27-45	Interior	21	21	19	21	21	17	21	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	5	7	6	5	6	5	4	6	5	4
50	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	7	11	8	6	10	7	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	8	11	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	10	13	10	8	13	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	11	13	13	10	12	11	9	11	10	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	10	7	5	9	7	7	8	6	6
			Exposed	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	10	7	11	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4	7	5	5	6	4	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	10	7	11	8	6	10	7	5	9	6	5	8	5	6	7	5	5	6	4	4
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5	6	4	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	10	13	11	9	12	9	7	12	8	6	11	7	6	10	6	5	9	5	7	7	5	5
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4	5	4	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	13	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5	6	5	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5	5	4	4
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5	6	4	4
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5	6	4	4
		7-20	Interior	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4	5	4	4
			Exposed	12	12	9	12	10	8	12	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	14	12	9	14	11	9	13	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5	6	4	4
			Exposed	14	13	10	14	11	9	14	10	8	14	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3	5	4	3
		27-45	Interior	16	16	16	16	16	16	16	16	15	16	16	14	15	15	13	14	14	11	14	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	5	6	5	4
			Exposed	16	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	6	5	6	5	4	6	5	4	5	4	4

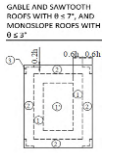
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

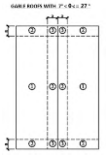
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

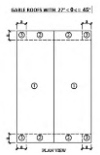
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

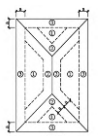












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

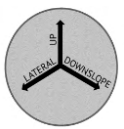
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

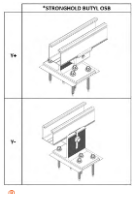
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	7	8	5	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	7	7	5	6
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	9	11	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	7	9	9	6	9	7	5	9	7	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	9	6	5	8	6	6	7	5	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	6	10	6	5	9	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	9	5	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	11	11	9	11	10	8	10	9	7	8	8	6	7	7	5	
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	6	10	8	5	9	6	7	6	7	5	6	6	4	7	5	5	6	6	4	7	5	5
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	10	10	9	10	10	8	10	9	7	10	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	9	12	9	7	11	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	11	13	13	10	12	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	14	14	13	14	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	6	5	4	6	5	4
70	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6			
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	7	6	10	6	5	9	6	5	9	5	6
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	10	10	10	9	10	10	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	5	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	9	7	6	7	6	5	9	5	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	8	10	9	7	9	8	6	8	7	6	7	5	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	5	6	5	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	5	8	6	6	7	5	4
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	5	8	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	6	10	6	5	9	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	9	5	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	12	12	10	11	11	9	10	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	13	13	13	13	13	13	13	13	11	13	13	10	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	6	5	4	6	5	4
80	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	6
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	6	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	5
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	5	6	7	5	5	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	6	5	5	6	6	5	5	6	4	5	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	7	6	8	8	6	8	5	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	8	6	5	7	6	5	7	5	6
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	9	9	9	8	9	9	7	8	8	6	7	7	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5	6	5	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	3	6	4	3
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	7	5	8	6	7	7	5	6	6	7	5	6	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	6	5	9	6	5	8	7	5			
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	6	9	7	6	9	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	10	10	10	9	10	10	7	9	8	6	9	7	6	7	6	5	6	5	7
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	6	5	4	6	5	4

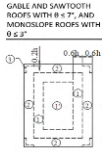
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

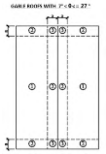
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

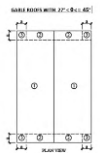
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

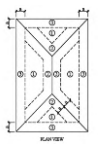












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

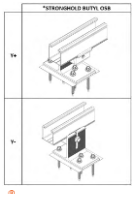
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6		
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	6		
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	8	8	9	8	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	6	7	6	5	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	6	5	8	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	8	8	6	7	7	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	5	5	6	4	5	5	6	6	7	5	5	4	7	5	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	7	7	5	6	6	6	7	5	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	8	6	5	8	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	7	8	8	6	8	8	5	8	5	6	7	6	5	8	6	5	8	6	5	6	5	4
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5	6	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	7	6	7	6	5	6	5	4
100	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6		
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	6	5	7	6	5	7	6	6
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5
	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6		
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5	5	6	4	5	6	4
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	4	7	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	6	5	7	6	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	5	6	7	6	7	6	5	6	5	6	5
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	7	6	7	6	5	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5	6	5	4
	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	7	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	7	5	3
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	6	5	6	6	7	6	5	6	6	5	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	7	6	5	7	6	5	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	7	8	8	6	8	8	5	8	5	6	7	6	5	8	6	5	8	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	7	8	8	6	7	7	6	7	6	5	6	5	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	9	9	7	8	7	6	7	6	5	6	5	6	5	7	6	7	6	5	6	5	4

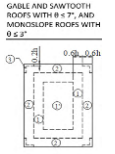
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

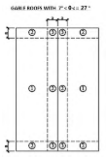
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

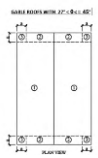
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

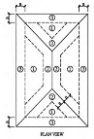












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

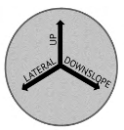
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

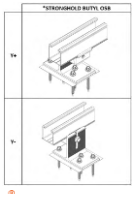
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	54	56	56	48	56	56	43	56	55	38	56	50	35	56	45	31	56	41	29	48	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	56	50	35	56	44	31	55	39	27	49	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	56	56	47	56	56	42	56	51	37	56	46	34	56	42	30	53	38	28	48	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	56	41	30	51	37	27	46	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	57	57	57	57	57	51	57	56	45	57	50	41	57	45	37	57	41	33	57	37	31	55	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	57	45	37	57	40	33	57	36	29	56	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	54	57	57	49	57	56	44	57	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15	20	15	10
			Exposed	57	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	56	53	37	56	47	32	56	42	29	52	37	26	47	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	47	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	56	44	32	54	39	28	48	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	57	48	39	57	42	35	57	38	31	57	34	28	54	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	57	57	47	57	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	56	43	30	54	39	27	48	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	50	36	27	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
10	B	0-7	Interior	45	45	45	45	45	45	45	45	43	45	45	38	45	45	35	45	45	31	45	41	29	45	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	45	45	35	45	44	31	45	39	27	45	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	14	22	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	45	45	45	45	45	42	45	45	37	45	45	34	45	42	30	45	38	28	45	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	45	41	30	45	37	27	45	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	52	52	52	52	52	51	52	52	45	52	50	41	52	45	37	52	41	33	52	37	31	52	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	52	45	37	52	40	33	52	36	29	52	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	56	56	56	56	56	56	56	56	54	56	56	49	56	56	44	56	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	56	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	45	45	37	45	45	32	45	42	29	45	37	26	45	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	45	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	45	44	32	45	39	28	45	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	52	48	39	52	42	35	52	38	31	52	34	28	52	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	52	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	56	56	47	56	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	45	43	30	45	39	27	45	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	45	36	27	45	32	24	41	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
20	B	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	29	33	33	24	33	29	21	33	25	18	31	22	15	27	19	14	24	17	12
			Exposed	33	33	33	33	33	31	33	33	27	33	33	25	33	32	22	33	29	20	33	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	33	41	37	31	41	31	26	41	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	41	41	37	41	40	33	41	36	29	41	32	26	41	29	24	41	26	22	41	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	46	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	46	46	44	46	46	39	46	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	33	33	33	33	33	32	33	33	29	33	33	26	33	33	24	33	31	21	33	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	33	33	24	33	30	21	33	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	34	34	32	34	34	28	34	34	26	34	31	23	34	28	21	34	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	34	28	21	34	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	41	41	39	41	41	35	41	38	31	41	34	28	41	31	25	41	28	23	41	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	41	31	25	41	27	22	41	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	46	46	46	46	46	46	46	46	37	46	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	33	33	30	33	33	24	33	31	22	33	28	20	33	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10	10	10	10
			Exposed	33	28	20	33	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	34	34	27	34	34	29	21	34	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9	10	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	43	39	32	43	35	29	43	31	26	43	28	23	43	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	43	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	47	47	39	47	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

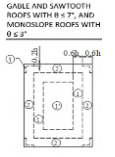
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

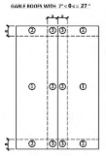
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

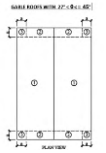
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

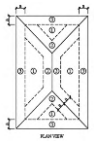












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

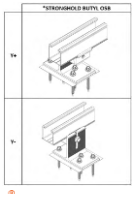
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	21	27	25	18	27	24	22	15	27	19	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	19	27	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18	27	21	16	26	19	14	22	16	12	20	14	11
			Exposed	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	18	27	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	31	34	31	26	34	27	22	34	23	19	34	20	16	30	18	14	27	16	13
			Exposed	34	34	34	34	34	33	34	34	29	34	32	26	34	29	24	34	26	22	34	24	20	34	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	38	38	38	38	38	38	38	38	35	38	38	32	38	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	24	17	27	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	27	27	24	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	27	27	21	27	25	18	27	22	17	27	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	31	25	34	28	23	34	25	21	34	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	34	31	25	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	37	38	38	33	38	38	30	38	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	38	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	27	27	20	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	36	36	32	36	35	29	36	31	26	36	28	23	36	25	21	36	23	19	36	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	36	25	21	36	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	40	40	39	40	40	34	40	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	18	25	22	15	25	19	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	20	25	25	19	25	22	16	25	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	21	16	25	19	14	22	16	12	20	14	11
			Exposed	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	18	25	22	16	25	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	23	19	29	20	16	28	18	14	27	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	29	26	22	29	24	20	29	20	17	29	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	32	32	26	30	29	23	28	25	20	25	22	17	22	20	15
			Exposed	33	33	33	33	33	33	33	33	32	33	33	29	33	33	26	33	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10	13	11	9
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	20	25	24	17	25	20	14	24	17	12	21	15	11	18	13	9	16	12	13	16	12	13
			Exposed	25	25	24	25	25	21	25	25	19	25	24	17	25	22	15	25	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	25	25	21	25	25	18	25	22	17	25	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	21	18	28	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	30	33	33	30	33	33	28	32	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	33	33	30	33	33	27	33	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	25	18	26	23	16	26	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	26	26	20	26	25	17	26	22	16	26	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	11	13	9	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	29	31	31	26	31	28	23	31	25	21	31	25	21	31	23	19	31	21	17	30	18	15	26	15	13	23	13	11	20	11	9	17	10	8
			Exposed	31	25	21	31	23	19	31	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	35	35	35	35	35	34	35	35	31	34	34	28	33	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
50	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	14	21	17	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	19	21	21	16	21	19	13	21	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	16	21	19	14	21	16	12	20	14	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	19	21	21	16	21	21	18	21	21	16	21	19	14	21	16	12	19	14	10
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	19	25	20	16	24	18	14	24	16	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	22	25	24	20	25	25	20	17	25	17	14	25	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	26	27	27	23	26	25	20	24	22	17	22	20	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10	14	13	10
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	20	14	21	17	12	21	15	11	18	13	9	16	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	20	14	21	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	15	21	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	21	21	21	21	21	18	21	21	17	21	21	15	21	20	14	21	18	13	21	17	12	21	15	11	18	13	9	15	11	12	13	9	10	11	8	9	10	7	
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	21	18	25	18	15	24	16	13	23	14	11	21	12	10	18	11	9
			Exposed	25	25	25	25	25	22	25	24	20	25	22	18	25	20	16	25	18	15	25	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	25	26	26	21	25	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	23	16	23	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	23	23	20	23	23	17	23	22	16	23	20	14	23	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	21	16	23	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	23	23	17	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	23	27	25	21	27	23	19	27	21	17	26	18	15	25	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	27	25	21	27	23	19	27	20	17	27	18	15	27	16	14	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7			
		27-45	Interior	31	31	31	31	31	31	31	31	31	28	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9		
			Exposed	31	31	25	31	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

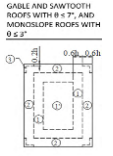
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

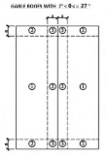
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

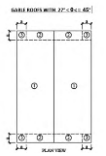
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

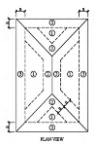












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

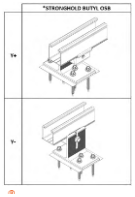
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	14	18	17	12			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	13	18	16	12	18	14	10	17	13	9	15	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	18	14	11		
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	18	14	21	16	13			
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	20	17	22	17	14	22	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	24	24	23	23	23	20	22	22	17	21	20	15			
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	17	12	18	15	11	18	13	9	16	12	13
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	18	13	18	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	17	12	18	15	11	17	13	9	15	11	13	14	10	11
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	17	12	18	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	18	22	18	15	21	16	13	20	14	11	20	12	10	18	11	9		
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	20	16	22	22	15	22	16	14	22	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	21	23	23	18	21	20	16	19	17	14	17	15	12	15	13	11
			Exposed	26	26	26	26	26	26	26	26	24	26	26	22	26	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	20	20	20	20	20	17	20	20	16	20	20	14	20	18	13	20	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	19	14	20	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	20	20	17	20	20	15	20	19	14	20	17	12	20	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	23	18	15	22	15	13	21	13	11	20	11	9	17	10	8	15	9	11	
			Exposed	24	24	21	24	23	19	24	20	17	24	18	15	24	16	14	24	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	27	27	25	26	26	23	25	25	21	24	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	28	28	25	28	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
70	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	10	15	13	9	15	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	11			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	10	16	12	9	15	11	12	13	9	10
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	18	14	19	16	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	19	15	12	19	13	11	19	11	9	17	10	8
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	20	20	20	17	19	19	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	12	15	15	11	15	13	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	13	9	15	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	13	9	15	11	12	13	9	10	11	13	9
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	16	11	16	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	18	14	11	18	12	10	17	11	9
			Exposed	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	19	16	14	19	14	11	19	12	10	18	10	8	15	9	11	14	12	10	12	11	9		
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	22	22	21	21	21	18	20	20	16	19	17	14	17	15	12	15	13	11		
			Exposed	24	24	24	24	24	24	24	24	24	22	24	24	20	23	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11		
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	14	10	17	14	10	17	13	9	15	11	12
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	14	10	17	14	10	17	13	9	15	11	12
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	15	11	17	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	20	15	13	19	13	11	19	11	9	17	10	8	15	9	11
			Exposed	21	21	21	21	21	19	21	20	17	21	18	15	21	16	14	21	15	12	21	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	24	24	23	23	21	22	22	18	20	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	25	25	25	25	25	22	25	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
80	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11			
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	11	17	10	8
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	17	18	18	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	20	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	13
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	12	13	10	11	12	13	9	11	12	8
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	13	9	14	11	13	10	11	
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	11	14	14	12	14	14	11	14	13	9	14	11	12	13	9	10
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	14	11	16	12	10	16	11	9			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	16	14	17	17	14	11	17	12	10	17	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	19	19	18	18	18	16	17	17	14	16	15	12	15	13	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11		
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	13	9	15	11	12	13	10	10
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7		
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	13	9	15	11	12	13	9	9
			Exposed	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	15	11	15	15	11	15	15	9	15	11	12	13	9	11	12	9	10	8	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	15	18	13	11	17	11	9	16	10	8	15	9	11			
			Exposed	19	19	19	19	19	19	19	19	17	19	18	15	19	16	14	19	15	12	19	14	11	19	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	21	20	20	18	19	19	15	18	17	13	16	14	11	14	13	10	13	11	9	
			Exposed	23	23	23	23	23	22	23	23	20	23	23	18	22	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

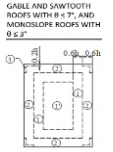
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

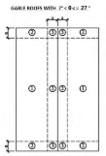
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

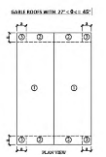
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

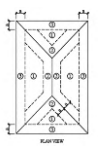












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

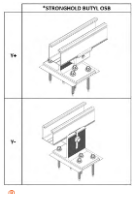
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12			
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	15	10	8
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	17	17	17	17			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	12	13
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	11	12	13	9	11	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	13	12	10	11			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	11	15	12	10	15	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	18	18	18	17	17	16	16	16	14	15	15	12	15	13	11	
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	18	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12	13	10	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	9	10	11	13	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	13	16	13	11	16	11	9	15	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	16	14	17	15	12	17	14	11	17	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	18	18	18	15	17	17	13	16	14	11	14	13	10	13	11	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	10
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	16	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	16	14	11	14	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	13
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	10	11	11	13	9	11	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	13	11	10	11			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	14	10	14	12	10	13	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	12	10	14	10	8	14	9	11	14	12	10	12	11	9
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	15	14	14	14	12	14	13	11	
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	16	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	10	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	12	9	10	11	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10	11	12	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	11	9	14	9	11			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	9	15	14	11	15	12	9	15	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	17	15	16	16	13	15	14	11	14	13	10	13	11	9
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	18	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

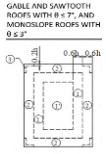
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

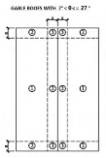
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

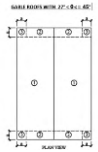
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

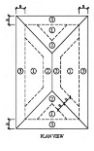












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

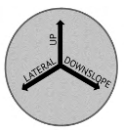
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

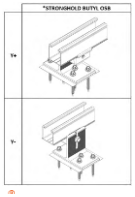
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	33	34	34	29	34	34	26	34	34	23	34	30	21	34	27	19	34	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	34	30	21	34	27	19	33	24	17	30	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	34	34	29	34	34	25	34	31	23	34	28	20	34	25	18	32	23	17	29	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	34	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	35	35	35	35	35	31	35	34	28	35	30	25	35	27	22	35	25	20	35	23	18	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	35	27	22	35	24	20	35	22	18	34	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	35	35	35	35	35	33	35	35	30	35	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	8
			Exposed	35	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	34	32	22	34	28	20	34	25	18	32	23	16	29	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	34	27	19	33	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	35	29	24	35	26	21	35	23	19	35	21	17	33	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	5	7	8	7	6	7	5
		27-45	Interior	35	35	28	35	32	25	32	29	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	34	26	18	33	23	16	29	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	31	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	35	24	19	35	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4
10	B	0-7	Interior	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	27	19	28	25	17	28	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	28	28	21	28	27	19	28	24	17	28	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	28	28	28	28	28	25	28	28	23	28	28	20	28	25	18	28	23	17	28	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	32	32	32	32	32	31	32	32	28	32	30	25	32	27	22	32	25	20	32	23	18	32	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	32	27	22	32	24	20	32	22	18	32	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9
			Exposed	34	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	28	28	22	28	28	20	28	25	18	28	23	16	28	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	28	27	19	28	24	17	28	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	32	29	24	32	26	21	32	23	19	32	21	17	32	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	34	34	28	34	34	32	34	34	30	34	34	27	34	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	12	9	8
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	28	26	18	28	23	16	28	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	28	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	33	24	19	33	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4
20	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	15	20	18	12	20	15	11	18	13	9	16	12	8	14	10	7
			Exposed	20	20	20	20	20	19	20	20	17	20	20	15	20	19	13	20	17	12	20	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	15	21	18	13	21	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	23	18	25	19	16	25	16	13	24	14	11	21	12	10	18	11	9	16	9	8	14	8	7
			Exposed	25	25	22	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	8
			Exposed	28	28	27	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	20	20	14	20	18	13	20	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	21	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	25	25	24	25	25	21	25	23	19	25	21	17	25	19	15	25	17	14	25	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	25	18	15	25	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	28	28	28	28	28	25	28	28	22	28	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	20	17	12	20	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	21	21	16	21	19	14	21	17	13	21	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	6	5	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	26	24	19	26	21	17	26	19	15	26	17	14	26	15	13	24	14	11	22	13	10	19	11	9	14	8	6	12	7	6	10	6	5	9	5	7	6	5	4
			Exposed	26	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4

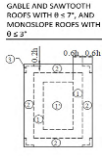
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

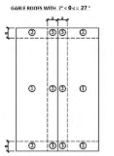
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

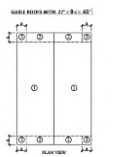
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

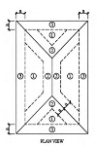












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

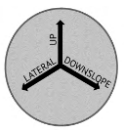
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

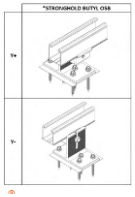
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	11	16	13	9	16	12	8	14	10	7			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	16	11	16	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	13	9	15	11	8	13	10	7	12	9	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16	21	16	13	21	14	11	21	12	10	18	11	9	16	9	8
			Exposed	21	21	21	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	22	20	16	20	17	14	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	16	16	14	16	16	13	16	16	11	16	15	10	16	13	9	16	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	11	16	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	17	14	21	15	13	21	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	23	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	6	5
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
40	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	11	15	13	9	15	12	8	14	10	7			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	9	15	11	8	13	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13	17	14	11	17	12	10	17	11	9	16	9	8
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	12	10	17	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	18	17	14	17	15	12	15	13	10	13	12	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	13	11	17	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	20	20	18	20	20	16	20	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	6	5
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
50	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	8	13	10	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	10	13	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10	15	11	9	14	9	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	10	15	10	9	15	9	7	14	8	6	12	7	6	10	6	5	9	5	7
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16	16	16	14	16	15	12	15	13	10	13	12	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6			
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	8	13	10	7	13	9	6	11	8	5	10	7	5
			Exposed	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	12	8	13	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	13	10	13	13	9	13	10	7	12	9	6	10	8	6	9	7	5	8	6	6	7	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	13	15	13	11	15	11	9	14	9	8	14	8	7	13	7	6	11	6	5
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	15	16	16	13	15	14	11	13	12	9	12	10	8	10	9	7	9	8	6			
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	14	14	12	14	14	10	14	13	9	14	12	8	14	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	6	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	14	16	15	13	16	14	11	16	13	10	16	11	9	15	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	16	15	13	16	14	11	16	12	10	16	11	9	16	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	17	18	18	15	17	17	14	17	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	19	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4

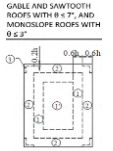
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

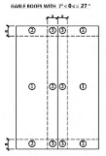
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

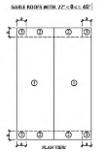
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

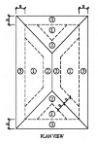












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

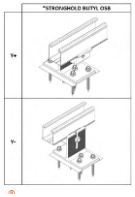
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6	10	7	5	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	11	9	13	9	8			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	9	13	9	7	13	8	6	12	7	6	10	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	14	14	12	13	13	10	13	12	9			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	7	11	9	6	10	8	6	9	7	5	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	9	13	11	9	13	9	8	12	8	7	12	7	6	11	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	11	6	5	9	5	7	8	7	6	11	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	9	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	5	5	6	6	5	6	5	5	6	5	5
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	13	10	14	11	9	14	9	7	13	8	6	12	7	6	10	6	5	9	5	7
			Exposed	14	14	13	14	14	11	14	12	10	14	11	9	14	10	8	14	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	9	6	5	8	6	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	16	16	15	16	16	14	15	15	13	14	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	17	17	15	17	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
70	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7		
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	7	5	9	7	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	9	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	9	12	9	7	12	8	6	12	7	6	10	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	13	11	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	5	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	6	9	8	5	9	7	7	8	6	6	7	5	5	6	7	5	6	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	11	9	8			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	11	6	5	9	5	7	8	7	6	8	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	12	12	9			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	5	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	7	10	8	6	10	7	5	9	6	7	8	5	5	7	5	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	12	11	9	12	9	7	12	8	6	11	9	6	10	6	5	9	5	7
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	10	6	5	9	5	6	8	7	6	9	6	5	8	6	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	13	13	13	11	12	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
80	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	6	10	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	10	11
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	11	9	11	10	8	10	9	7	9
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	7	5	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	6	10	8	6	10	7	6	10	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	10	11
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	9	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	8	9	9	8	9	9	6	9	8	5	9	7	7	8	6	6	7	5	5	6	7	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	9	6	9	8	5	9	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	6	10	6	5	9	5	7			
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	12	12	12	10	11	11	9	10	10	8	10	9	7	8	8	6	7	7	5
			Exposed	14	14	14	14	14	13	14	14	12	14	14	11	13	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

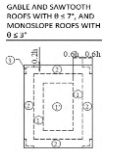
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

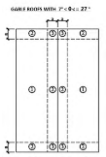
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

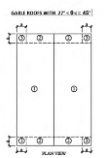
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

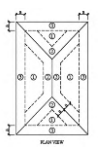












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

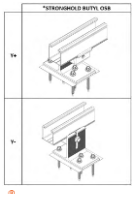
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7			
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	6	9	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	10	10	10	10	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7	7	6	6	7	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	9	8	6	
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6			
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	7	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	8	6	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	5	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	8	6	7	7	5	6	7	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	6	9	6	5	9	5	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	8	7	9	7	6	10	6	5	9	5	6	8	7	6	7	6	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	11	11	11	11	9	10	10	8	10	9	7	8	8	6	7	7	5
			Exposed	13	13	13	13	13	13	13	13	13	11	12	12	10	12	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	6	5	6	5	4
100	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	6	8	6	5	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6	8	7	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	9	9	9	8	9	9	7	9	8	6	9	7	6	9	6	5	8	5	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	9	7	9	6	5	9	5	6	8	7	6	7	6	5	7	6	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	8	8	6	7	7	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	9	11	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

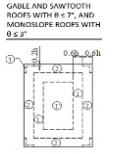
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

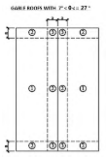
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

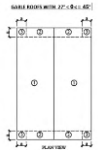
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

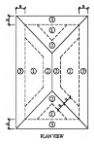












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

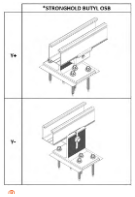
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	57	57	55	57	57	49	57	57	44	57	57	39	57	51	35	57	46	32	57	42	29	49	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	57	51	35	57	45	31	56	40	28	50	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	57	57	48	57	57	43	57	53	38	57	47	34	57	43	31	54	39	28	49	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	57	42	31	52	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	58	58	58	58	58	52	58	57	46	58	51	42	58	46	38	58	42	34	58	38	31	56	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	58	46	38	58	41	33	58	36	30	57	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	59	59	59	59	59	59	59	59	56	59	59	50	59	58	45	59	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	59	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	57	54	37	57	48	33	57	43	30	54	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	48	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	57	45	33	56	40	29	50	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	58	49	40	58	43	35	58	39	32	58	35	28	55	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	55	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	59	59	48	59	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	57	44	31	55	39	27	49	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	52	37	27	46	33	24	41	29	22	37	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	9	6
		20-27	Interior	58	40	33	58	36	29	56	32	26	50	29	24	45	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	45	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	17	12	10	11	10	8	10	9	7
		27-45	Interior	56	50	39	50	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
10	B	0-7	Interior	46	46	46	46	46	46	46	46	44	46	46	39	46	46	35	46	46	32	46	42	29	46	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	46	46	35	46	45	31	46	40	28	46	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	47	47	47	47	47	43	47	47	38	47	47	34	47	43	31	47	39	28	47	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	47	42	31	47	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	53	53	53	53	53	52	53	53	46	53	51	42	53	46	38	53	42	34	53	38	31	53	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	53	46	38	53	41	33	53	36	30	53	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	57	57	57	57	57	57	57	57	56	57	57	50	57	57	45	57	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	57	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	46	46	37	46	46	33	46	43	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	46	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	47	45	33	47	40	29	47	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	53	49	40	53	43	35	53	39	32	53	35	28	53	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	53	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	57	57	48	57	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	46	44	31	46	39	27	46	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	47	37	27	47	33	24	47	29	22	47	27	19	47	24	18	47	22	16	47	20	15	47	17	12	47	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	9	6
		20-27	Interior	47	40	33	47	36	29	47	32	26	47	29	24	47	26	21	47	24	19	47	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	44	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	48	48	39	48	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
20	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	25	34	30	21	34	26	18	31	23	16	27	20	14	24	17	12
			Exposed	34	34	34	34	34	31	34	34	28	34	34	25	34	33	23	34	30	21	34	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	26	35	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	35	35	31	35	35	28	35	34	25	35	30	22	35	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	38	31	42	32	26	42	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	42	42	38	42	41	33	42	36	30	42	33	27	42	30	24	42	27	22	42	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	47	47	45	47	47	40	47	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	34	34	34	34	34	33	34	34	30	34	34	27	34	34	24	34	31	22	34	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	34	34	24	34	31	21	34	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	35	35	33	35	35	29	35	35	26	35	32	23	35	29	21	35	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	35	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	42	42	40	42	42	35	42	39	32	42	35	28	42	31	26	42	28	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	42	31	26	42	28	23	42	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	34	34	31	34	34	27	34	34	25	34	32	22	34	29	20	34	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	34	28	20	34	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	35	35	27	35	33	24	35	29	22	35	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	9	6
		20-27	Interior	44	40	33	44	36	29	44	32	26	44	29	24	44	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	44	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	48	48	39	48	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

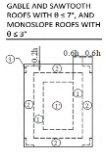
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

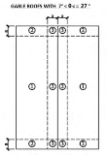
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

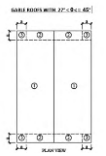
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

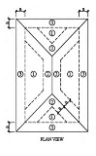












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

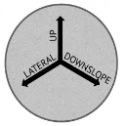
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

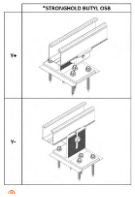
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	26	18	27	23	16	27	20	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	27	19	27	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	25	19	27	22	16	26	19	14	23	17	12	20	15	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	25	18	27	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	32	26	35	27	22	35	24	19	35	20	17	31	18	15	28	16	13			
			Exposed	35	35	35	35	35	33	35	35	30	35	33	27	35	30	24	35	27	22	35	25	20	35	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16			
			Exposed	39	39	39	39	39	39	39	39	36	39	39	32	39	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	12	21	15	11	19	14	10	17	12	8			
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	24	18	27	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	27	27	21	27	26	19	27	23	17	27	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	35	35	35	35	35	35	35	35	32	35	35	28	35	31	26	35	28	23	35	26	21	35	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	35	31	26	35	28	23	35	25	20	35	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	38	39	39	34	39	39	31	38	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	39	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	6	
		20-27	Interior	36	36	33	36	36	29	36	32	26	36	29	24	36	26	21	36	24	19	36	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	36	26	21	36	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	41	41	39	41	41	35	41	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	23	16	25	20	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	16	25	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	25	19	26	22	16	26	19	14	23	17	12	20	15	11
			Exposed	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	25	18	26	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	24	19	29	20	17	29	18	15	28	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	27	22	29	25	20	29	21	17	29	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	33	33	27	31	30	23	29	26	20	25	23	18	22	20	16
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	17	25	21	14	25	18	12	21	15	11	19	14	10	17	12	8			
			Exposed	25	25	24	25	25	21	25	25	19	25	25	17	25	22	16	25	20	14	25	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	24	18	26	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	26	26	21	26	26	19	26	23	17	26	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	26	29	28	23	29	26	21	29	22	18	29	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	29	29	26	29	28	23	29	25	20	29	22	18	29	20	17	29	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	34	34	31	34	34	27	34	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	9	7	11	8	6	
		20-27	Interior	31	31	31	31	31	31	31	31	26	31	29	24	31	26	21	31	24	19	31	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	31	26	21	31	23	19	31	21	17	31	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	36	36	36	36	36	35	36	36	31	35	35	28	34	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
50	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	20	14	22	17	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	16	22	22	16	22	22	16	22	19	14	22	17	12	20	15	11
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	19	14	22	17	12	20	15	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11			
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	24	19	26	20	17	25	18	15	24	16	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	21	17	26	18	15	26	18	15	23	13	11	20	12	10	18	10	8	16	9	11
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	28	28	23	26	26	20	25	23	18	22	20	16
			Exposed	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10			
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	14	22	18	12	21	15	11	19	14	10	17	12	8
			Exposed	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	20	14	22	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	20	15	22	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	22	22	22	22	22	22	22	22	17	22	21	15	22	19	14	22	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	24	16	13	23	14	12	21	12	10	19	11	9
			Exposed	26	26	26	26	26	23	26	25	20	26	22	18	26	20	17	26	18	15	26	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	28	29	29	26	27	27	22	25	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	30	30	30	30	30	27	30	30	25	30	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	23	17	23	23	17	23	20	14	23	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	23	23	20	23	23	18	23	23	16	23	20	14	23	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	24	24	24	24	24	24	24	24	22	24	24	19	24	24	18	24	22	16	24	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	24	24	18	24	21	16	24	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	27	24	19	27	22	18	27	18	15	26	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	27	26	21	27	23	19	27	21	17	27	19	15	27	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	32	32	32	32	32	32	31	31	31	28	30	30	26	29	29	23	28	27	21	26	23	18	24	20	15	19	17	13	16	15	12	14	13	10	12	11	9	11	10
			Exposed	32	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

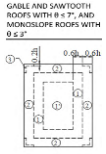
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

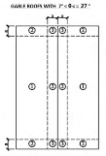
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

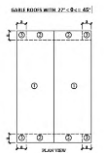
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

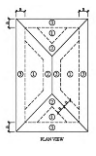












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

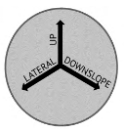
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

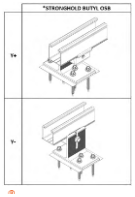
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	10	18	13	9	16	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	20	17	22	18	15	21	16	13	20	15	11	16	13
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	21	17	23	18	15	23	15	13	23	13	11	20	12	10	18	10	9	16	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	25	25	23	24	24	20	23	23	18	22	20	16	20	16	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	12	18	15	11	18	14	10	17	12	8
			Exposed	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	13	18	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	17	13	18	15	11	18	13	10	16	11	8	14	10	11
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	13	18	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	22	19	15	22	16	13	21	14	12	20	12	10	19	11	9
			Exposed	23	23	23	23	23	23	23	23	20	23	22	18	23	20	17	23	18	15	23	17	14	23	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	17	16	12	15	14	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	20	14	20	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	20	20	20	20	20	20	20	20	14	20	19	13	20	17	12	20	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7	11	8	9
		7-20	Interior	20	20	20	20	20	20	20	20	19	20	20	18	20	20	16	20	20	15	20	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9	11	8	9
			Exposed	20	20	18	20	20	16	20	19	14	20	17	13	20	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	22	18	24	18	15	23	16	13	22	13	11	20	12	10	18	10	8	16	9	11
			Exposed	24	24	21	24	23	19	24	21	17	24	19	15	24	17	14	24	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	29	29	29	29	29	29	29	29	29	28	28	28	27	27	26	27	27	23	26	26	21	24	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	29	29	26	29	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
70	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	10	16	13	9	16	11	12	16	12	11
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	10	16	12	9	15	11	12	13	10	11
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	15	19	16	13	18	14	10
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	15	20	15	13	20	13	11	20	12	10	18	10	9
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	23	23	22	22	20	21	21	18
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	11	16	14	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	13	10	16	11	8	14	10	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	11	16	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	18	15	20	17	14	20	14	12	20	12	10	18	10	9	16	9	11	14	8	10	12	11	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	18	15	20	17	14	20	14	12	20	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	24	24	24	20	24	24	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	18	23	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	15	10	17	14	9	16	11	12	14	10	11
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	15	11	17	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	16	18	18	15	18	17	12	18	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	18	18	18	18	18	16	18	18	14	18	17	13	18	16	11	18	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	18	15	21	16	13	20	13	11	19	12	10	18	10	8	16	9	11
			Exposed	22	22	21	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	23	24	24	21	22	22	18	21	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	26	26	26	26	26	23	26	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
80	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	12	17	10	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	19	19	18	18	18	16	15	13	10
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	13	9	14	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	12	17	10	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	19	19	18	18	18	16	15	13	10
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	12	14	10	11
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7	11	8	9
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	11	15	12	9	15	11	12	13	9	11	12	8	9
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	15	10	15	15	10	15	11	12	13	10	10	11	8	8	9	10	7	8	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	18	13	11	18	12	10	17	10	8	16	9	11
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	17	14	19	15	13	19	14	12	19	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	22	22	21	21	21	18	21	19	16	18	17	13	16	16	12	15	12	10	13	10	9
			Exposed	24	24	24	24	24	24	23	24	24	20	23	23	18	23	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

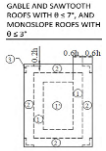
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

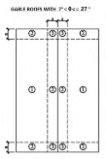
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

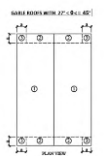
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

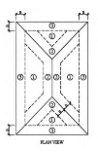












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

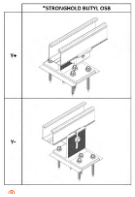
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12		
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	10	11
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	17	17	16
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	15	18	17	13	16	15	12	15	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	12	12	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	11	12	9	9	11	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	8	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	8	12	10	11	12	8	9	10	11	8	9	10	~~7~~
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	12	15	15	12	15	12	10	15	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	12	15	12	10	15	10	9	15	9	11	14	8	10	12	11	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	17	17	16	16	16	14	16	16	12	15	14	11	
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	13	9	14	11	12	14	10	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	9	14	11	12	13	10	10	11	8	9	10	11	~~8~~	9	10	~~7~~
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	12	9	14	11	12	13	9	11	12	8	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	10	14	11	12	13	9	10	11	12	9	10	11	~~8~~	8	9	~~7~~	11	8	~~6~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	16	12	10	16	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	14	12	17	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	~~7~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	19	19	18	18	18	15	17	17	13	16	15	12	14	13	10	13	11	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	21	21	17	21	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	11	11
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	12	10	14	10	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	17	17	13	16	15	12	15	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	11	11	9	9	11	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	10	14	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	10	14	10	9	14	9	11	14	8	10	12	11	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	14	17	15	12	15	13	10	13	12	9	11	10	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	17	17	13	16	15	12
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	10	11	8	9	10	11	~~8~~	9	10	~~7~~
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	9	12	11	12	12	9	11	12	8	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	10	12	11	12	12	9	10	12	9	10	11	~~8~~	8	9	~~7~~	11	8	~~6~~
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	8	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	12	10	15	10	8	15	9	11	13	12	10	11	10	8	10	9	~~7~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	18	18	18	17	17	15	16	16	13	15	15	12	14	13	10	13	11	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	19	15	19	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

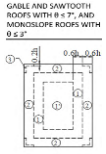
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

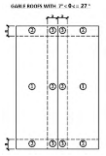
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

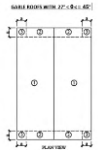
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

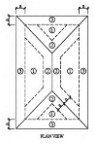












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

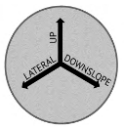
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

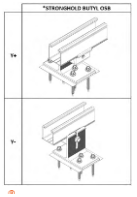
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	29	29	27	29	29	24	29	29	22	29	28	19	29	25	17	29	23	16	29	21	14	24	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	29	25	17	29	22	15	28	20	14	25	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	29	29	24	29	29	21	29	26	19	29	23	17	29	21	15	27	19	14	24	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	29	29	29	29	29	26	29	28	23	29	25	21	29	23	19	29	21	17	29	19	15	28	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	29	23	19	29	20	16	29	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	28	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	29	27	18	29	24	16	29	21	15	26	19	13	24	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	24	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	29	22	16	27	20	14	24	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	29	24	20	29	21	17	29	19	16	29	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	29	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	6	5	4	7	5	5	6	4	4
		7-20	Interior	26	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	29	20	16	29	18	14	28	16	13	25	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	9	5	4	6	5	4	5	4	3
		27-45	Interior	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	5	4	6	5	4	5	4	3
10	B	0-7	Interior	23	23	23	23	23	23	23	23	22	23	23	19	23	23	17	23	23	16	23	21	14	23	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	23	23	17	23	22	16	23	20	14	23	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	27	27	27	27	27	26	27	27	23	27	25	21	27	23	19	27	21	17	27	19	15	27	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	27	23	19	27	20	16	27	18	15	27	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	23	22	16	23	20	14	23	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	27	24	20	27	21	17	27	19	16	27	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	23	22	15	23	19	13	23	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	23	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	27	20	16	27	18	14	22	16	13	22	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	9	5	4	6	5	4	5	4	3
		27-45	Interior	24	24	19	24	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	5	4	6	5	4	5	4	3
20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	10	17	13	9	15	11	8	13	10	7	12	9	6
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	15	10	17	13	9	16	11	8	13	9	6	10	7	5	9	6	7	8	5	6	7	5	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	17	17	15	17	17	14	17	17	12	17	15	11	17	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	16	13	21	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	21	21	19	21	20	16	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	23	23	22	23	23	20	23	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	17	17	12	17	15	10	17	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	17	17	16	17	17	14	17	17	13	17	16	12	17	14	10	17	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	17	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	21	21	20	21	21	17	21	19	16	21	17	14	21	15	13	21	14	11	21	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	21	15	13	21	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	23	23	23	23	23	21	23	23	19	23	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	17	17	15	17	17	12	17	17	11	17	14	10	17	13	9	16	12	8	14	10	7	12	9	6	10	7	5	9	6	7	8	6	5	7	5	5	6	5	5
			Exposed	17	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	17	17	13	17	16	12	17	14	11	17	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	22	20	16	22	18	14	22	16	13	22	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	9	5	4	6	5	4	5	4	3
		27-45	Interior	24	24	19	24	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	5	4	6	5	4	5	4	3

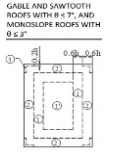
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

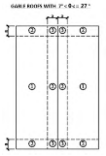
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

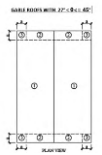
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

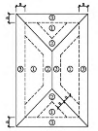












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

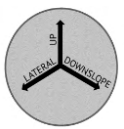
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

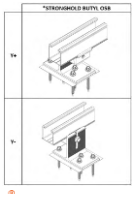
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	9	14	11	8	13	9	7	11	8	6	10	7	5
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	17	12	9	17	10	8	15	9	7	14	8	6
			Exposed	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	13	13	12	13	13	10	13	13	9	13	12	8	13	11	8	13	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13	17	14	11	17	13	10	17	11	9	16	9	7	14	8	6	12	9	6	10	6	5	9	5	7
			Exposed	17	15	13	17	14	11	17	12	10	17	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	19	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	20	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	6	5	6	5	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4	7	5	5
		7-20	Interior	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	14	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	18	18	16	18	18	14	18	16	13	18	14	12	18	13	10	18	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	18	13	10	18	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	4	6	5	4	5	4	3
		27-45	Interior	21	21	19	21	21	17	21	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	5	6	6	4	6	5	4	5	4	3
40	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	10	12	12	9	12	11	8	12	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	12	9	13	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	4	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	9	15	10	8	14	9	7	14	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	13	15	15	11	14	13	10	12	11	9	11	10	8
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	7	5	9	7	7	8	6	6	8	6	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	12	9	13	11	8	13	9	7	12	8	6	10	7	5	9	6	5	7	5	5
			Exposed	13	13	10	13	13	9	13	11	8	13	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	13	10	15	11	9	14	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	15	15	13	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	13	10	13	13	9	13	12	8	12	8	6	10	7	5	9	7	7	8	6	6	8	6	6
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	12	9	13	11	8	13	9	7	12	8	6	10	7	5	9	6	5	7	5	5
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	13	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	11	12	12	12	10	12	12	9	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4	5	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	10	7	11	8	6	10	7	5	8	6	6	7	5	6	6	7	5	6	6	4
			Exposed	12	12	9	12	12	9	12	12	8	12	12	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	14	12	9	14	11	9	13	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	14	13	10	14	11	9	14	10	8	14	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3
		27-45	Interior	16	16	16	16	16	16	16	16	15	16	16	14	15	15	13	14	14	11	14	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	16	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	6	5	6	5	4	5	4	3
50	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	7	11	8	6	10	7	5	9	6	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	7	11	8	6	9	7	5	8	6	6	7	5	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	13	10	13	13	10	13	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	11	13	13	10	12	11	9	11	10	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	10	7	5	9	7	6
			Exposed	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	10	7	11	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	9	11	10	7	11	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	9	12	9	7	12	8	6	11	7	6	10	6	5	9	5	7
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	13	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	11	12	12	12	10	12	12	9	12	12	8	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4	5	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	12	12	9	12	12	9	12	12	8	12	12	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	14	12	9	14	11	9	13	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	14	13	10	14	11	9	14	10	8	14	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3
		27-45	Interior	16	16	16	16	16	16	16	16	15	16	16	14	15	15	13	14	14	11	14	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	16	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	6	5	6	5	4	5	4	3

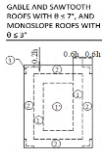
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

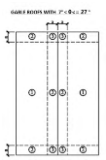
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

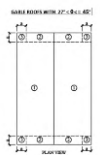
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

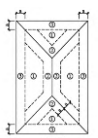












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

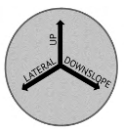
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

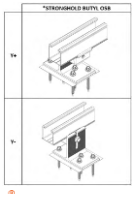
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	7	8	5	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	9	9	7	9	9	8	6	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	7	7	5	6	6	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	8	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	7	6	11	6	5	10	6	5	9	5	6	8	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	9	11	10	8	10	7	5
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5	7	5	4
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	7	5	9	7	7	8	6	6	6	4	4
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4	5	4	3
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	9	6	5	8	5	6	7	5	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	3	5	3	3
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	6	10	6	5	9	5	7	8	5	4
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	9	5	6	7	4	3
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	11	11	9	11	10	8	10	9	7	8	8	6	7	7	5	7	5	4
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	6	6	4	5	6	4	5	4	3
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	9	6	7	8	5	6	7	5	5	6	4	4
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	6	10	8	5	10	7	5	9	6	7	6	5	5	6	4	5	5	6	4	5	6	4	4	3	3
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4	5	3	3
			Exposed	10	10	9	10	10	8	10	9	7	10	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	5	4	6	4	4	5	5	4	6	4	3	5	4	3	4	3	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	9	12	9	7	11	8	6	11	6	5	10	6	5	9	5	6	8	7	5	7	4	3
			Exposed	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3	4	3	3
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	11	13	13	10	12	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4	5	3	3
			Exposed	14	14	13	14	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	7	6	4	6	5	4	5	3	3
70	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	4	6	5	3	5	3	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6	8	6	5	7	4	3
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	7	6	10	6	5	8	6	4	6	5	3	5	3	3
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	10	10	8	9	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5	7	5	4
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	6	7	8	6	6	7	5	5	6	6	4	5	6	4	5	4	3
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	5	6	4	4
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	8	5	8	6	5	7	5	5	6	6	5	5	5	4	6	5	3	5	3	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6	8	5	4
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	8	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4	5	3	3
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	10	10	9	10	10	8	9	9	7	8	8	6	8	5	4
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5	7	5	4
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	4	6	5	3	5	3	3
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	6	7	5	5	6	6	4	5	6	4	5	3	3
			Exposed	9	9	9	9	9	8	9	9	7	9	8	6	9	8	5	9	7	5	9	6	7	7	5	6	6	5	4	6	4	4	5	5	4	6	4	3	5	4	3	4	3	3
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	10	9	7	10	8	6	10	6	5	9	5	6	8	7	5	7	4	3
			Exposed	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	8	6	11	7	6	10	6	5	8	5	6	7	6	5	6	5	4	5	4	3	5	4	3	4	3	3
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	12	12	10	11	11	9	10	10	7	9	8	6	8	7	6	7	6	5	6	5	4	5	3	3
			Exposed	13	13	13	13	13	11	13	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	7	6	4	6	5	4	5	3	3
80	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	7	5	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	6	5	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	5	4
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	5	4
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	7	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5	6	4	3
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	5	6	6	4	5	6	4	5	4	3
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	6	5	5	6	6	5	5	5	4	6	5	3	5	3	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	5	4
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	8	6	5	7	5	4	6	5	3	5	3	3
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	9	9	9	8	10	10	9	9	9	8	8	8	6	7	5	5
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5	6	4	3
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	3	5	3	3
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	6	7	5	6	6	4	5	3	3
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	8	5	8	8	5	8	6	5	7	5	5	6	6	5	5	5	4	6	5	3	5	3	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	6	5	9	6	5	8	5	6	8	7	5	7	4	3
			Exposed	9	9	9	9	9	8	9	9	7	9	9	7	9	8	7	9	7	6	9	7	6	9	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3	4	3	3
		27-45	Interior	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	7	6	4	6	5	4	5	3	3
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	7	6	4	6	5	4	5	3	3

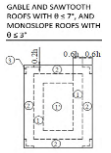
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

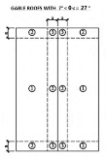
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

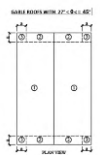
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

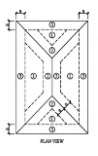












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

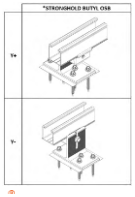
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	5	6	5	5	5
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	5	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	6	5	8	5	6
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9	8	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	5	6	5	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	6	7	6	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	6	8	6	5	8	6	5	7	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	8	8	6	7	7	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	7	5	6	6	6	7	5	5	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	8	6	5	8	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	7	8	8	6	8	8	6	8	8	5	8	6	5	8	6	5	7	6	5	6	5	4
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5	6	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	10	9	7	8	7	6	7	6	5	6	5	5	7	6	7	6	5	6	5	5	4
100	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5	5	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	6	5	7	6	5	7	5	6
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5
	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	5	5	5	6
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	4	5	6	4
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	4	7	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	5	6	7	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	6	7	7	5	7	6	5	7	6	5	6	6	5	6	5	4	6	5	4	5	4	3
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	7	6	7	6	5
	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	7	5	3
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	5	6	6	4	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	7	6	5	7	6	5	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	7	8	8	6	8	8	6	8	8	5	8	6	5	8	6	5	7	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	6	7	7	6	7	6	5	6	5	4	5	4	3
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	9	9	7	8	7	6	7	6	5	6	5	6	5	6	4	5	4	3	5	4	3

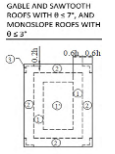
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

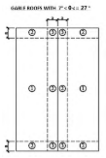
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

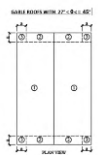
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

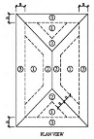












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

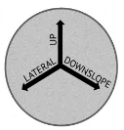
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

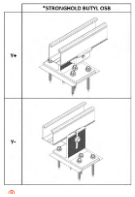
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	54	56	56	48	56	56	43	56	55	38	56	50	35	56	45	31	56	41	29	48	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	56	50	35	56	44	31	55	39	27	49	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	56	56	47	56	56	42	56	51	37	56	46	34	56	42	30	53	38	28	48	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	56	41	30	51	37	27	46	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	57	57	57	57	57	51	57	56	45	57	50	41	57	45	37	57	41	33	57	37	31	55	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	57	45	37	57	40	33	57	36	29	56	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	54	57	57	49	57	56	44	57	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15	18	13	10
			Exposed	57	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	56	53	37	56	47	32	56	42	29	52	37	26	47	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	47	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	56	44	32	54	39	28	48	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	57	48	39	57	42	35	57	38	31	57	34	28	54	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	57	57	47	57	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	56	43	30	54	39	27	48	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	50	36	27	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
10	B	0-7	Interior	45	45	45	45	45	45	45	45	43	45	45	38	45	45	35	45	45	31	45	41	29	45	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	45	45	35	45	44	31	45	39	27	45	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	45	45	45	45	45	42	45	45	37	45	45	34	45	42	30	45	38	28	45	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	45	41	30	45	37	27	45	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	52	52	52	52	52	51	52	52	45	52	50	41	52	45	37	52	41	33	52	37	31	52	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	52	45	37	52	40	33	52	36	29	52	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	56	56	56	56	56	56	56	56	54	56	56	49	56	56	44	56	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	56	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	45	45	37	45	45	32	45	42	29	45	37	26	45	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	45	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	45	44	32	45	39	28	45	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	52	48	39	52	42	35	52	38	31	52	34	28	52	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	52	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	56	56	47	56	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	45	43	30	45	39	27	45	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	45	36	27	45	32	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	52	39	32	52	35	29	52	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
20	B	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	29	33	33	24	33	29	21	33	25	18	31	22	15	27	19	14	24	17	12
			Exposed	33	33	33	33	33	31	33	33	27	33	33	25	33	32	22	33	29	20	33	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11	17	12	9
			Exposed	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	33	41	37	31	41	31	26	41	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	41	41	37	41	40	33	41	36	29	41	32	26	41	29	24	41	26	22	41	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	46	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15	18	16	13
			Exposed	46	46	44	46	46	39	46	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	33	33	33	33	33	32	33	33	29	33	33	26	33	33	24	33	31	21	33	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	33	33	24	33	30	21	33	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	34	34	32	34	34	28	34	34	26	34	31	23	34	28	21	34	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	34	28	21	34	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	41	41	39	41	41	35	41	38	31	41	34	28	41	31	25	41	28	23	41	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	41	31	25	41	27	22	41	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	46	46	46	46	46	46	46	46	37	46	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	33	33	30	33	33	24	33	31	22	33	28	20	33	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10	10	10	10
			Exposed	33	28	20	33	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	34	34	27	34	34	29	21	34	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9	10	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	43	39	32	43	35	29	43	31	26	43	28	23	43	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	43	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	47	47	39	47	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

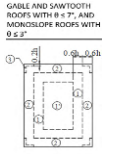
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

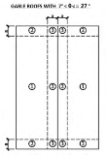
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

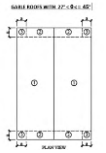
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

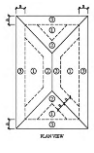












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

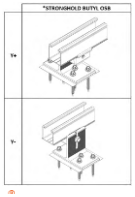
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	21	27	25	18	27	24	22	15	27	19	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	19	27	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18	27	21	16	26	19	14	22	16	12	20	14	11
			Exposed	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	18	27	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	31	34	31	26	34	27	22	34	23	19	34	20	16	30	18	14	27	16	13
			Exposed	34	34	34	34	34	33	34	34	29	34	32	26	34	29	24	34	26	22	34	24	20	34	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	38	38	38	38	38	38	38	38	35	38	38	32	38	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	24	17	27	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	27	27	24	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	27	27	21	27	25	18	27	22	17	27	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	31	25	34	28	23	34	25	21	34	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	34	31	25	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	37	38	38	33	38	38	30	38	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	38	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	27	27	20	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	36	36	32	36	35	29	36	31	26	36	28	23	36	25	21	36	23	19	36	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	36	25	21	36	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	40	40	39	40	40	34	40	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	18	25	22	15	25	19	14	24	17	12			
			Exposed	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	20	25	25	19	25	22	16	25	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	21	16	25	19	14	22	16	12	20	14	11
			Exposed	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	18	25	22	16	25	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	23	19	29	20	16	28	18	14	27	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	29	26	22	29	24	20	29	20	17	29	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	32	32	26	30	29	23	28	25	20	25	22	17	22	20	15
			Exposed	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	33	26	33	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	20	25	24	17	25	20	14	24	17	12	21	15	11	18	13	9	16	12	13			
			Exposed	25	25	24	25	25	21	25	25	19	25	24	17	25	22	15	25	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	25	25	21	25	25	18	25	22	17	25	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	21	18	28	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	33	28	32	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	33	33	30	33	33	27	33	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	25	18	26	23	16	26	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	26	26	20	26	25	17	26	22	16	26	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	29	31	31	26	31	28	23	31	25	21	31	25	21	31	23	19	31	21	17	30	18	15	26	15	13	23	13	11	20	11	9	17	10	8
			Exposed	31	25	21	31	23	19	31	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	35	35	35	35	35	34	35	35	31	34	34	28	33	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
50	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	14	21	17	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	19	21	21	16	21	19	13	21	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	16	21	19	14	21	16	12	20	14	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	19	21	21	16	21	21	18	21	21	16	21	19	14	21	16	12	19	13	10
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	19	25	20	16	24	18	14	24	16	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	24	20	25	25	20	17	25	17	14	25	15	12	22	13	11	20	11	9	17	10	8	15	9	11
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	26	27	27	23	26	25	20	24	22	17	22	20	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10			
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	20	14	21	17	12	21	15	11	18	13	9	16	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	20	14	21	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	15	21	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	21	21	21	21	21	18	21	21	17	21	20	15	21	18	13	21	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	21	18	25	18	15	24	16	13	23	14	11	21	12	10	18	11	9
			Exposed	25	25	25	25	25	22	25	24	20	25	22	18	25	20	16	25	18	15	25	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	25	26	26	21	25	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	23	16	23	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	23	23	20	23	23	17	23	22	16	23	20	14	23	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	21	16	23	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	23	23	17	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	23	27	25	21	27	23	19	27	21	17	26	18	15	25	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	27	25	21	27	23	19	27	20	17	27	18	15	27	16	14	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7			
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	28	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9	
			Exposed	31	31	25	31	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

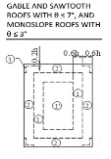
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

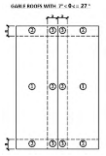
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

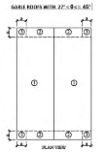
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

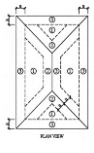












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

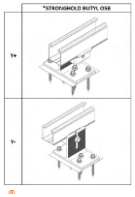
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	14	18	17	12			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	13	18	16	12	18	14	10	17	13	9	15	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	18	11			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	18	14	21	16	13			
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	20	17	22	17	14	22	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	24	24	23	23	20	22	22	17	21	20	15			
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	17	12	18	15	11	18	13	9	16	12	13
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	18	13	18	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	17	12	18	15	11	17	13	9	15	11	13	14	10	11
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	17	12	18	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	18	22	18	15	21	16	13	20	14	11	20	12	10	18	11	9			
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	20	16	22	22	18	22	22	18	22	18	15	22	15	13	21	13	11	20	11	9	17	10	8	15	9	11
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	21	23	23	18	21	20	16	19	17	14	17	15	12	15	13	11
			Exposed	26	26	26	26	26	26	26	26	24	26	26	22	26	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	20	20	20	20	20	17	20	20	16	20	20	14	20	18	13	20	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	19	14	20	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	9			
			Exposed	20	20	17	20	20	15	20	19	14	20	17	12	20	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	23	18	15	22	15	13	21	13	11	20	11	9	17	10	8	15	9	11			
			Exposed	24	24	21	24	23	19	24	20	17	24	18	15	24	16	14	24	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	27	27	25	26	26	23	25	25	21	24	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	28	28	25	28	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
70	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	12	15	15	12	15	14	10	15	13	9	15	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	11			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	10	16	12	9	15	11	12	13	9	10
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	18	14	19	16	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	19	15	12	19	13	11	19	11	9	17	10	8
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	20	20	20	17	19	19	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	14	15	13	9	15	12	13		
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	13	9	15	11	12	14	10	11	12	13	9	11	12	8		
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	15	16	16	12	16	15	11	16	13	9	15	11	13	14	10	11
			Exposed	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	16	12	16	15	11	16	13	9	15	11	12	13	9	11	13	9	10	11	8	9	10	7
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	18	14	11	18	12	10	17	11	9
			Exposed	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	19	16	14	19	14	11	19	12	10	18	10	8	15	9	11	14	12	10	12	11	9		
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	22	22	21	21	21	18	20	20	16	19	17	14	17	15	12	15	13	11	
			Exposed	24	24	24	24	24	24	24	24	24	22	24	24	20	23	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11		
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	14	10	17	13	9	15	11	12	13	10	10
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	14	10	17	12	9	15	11	12	14	10	11	13	9	9
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	15	11	17	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	15	20	15	13	19	13	11	19	11	9	17	10	8	15	9	11		
			Exposed	21	21	21	21	21	19	21	20	17	21	18	15	21	16	14	21	15	12	21	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	23	23	21	22	22	18	20	19	15	18	17	13	16	14	11	14	13	10	13	11	9			
			Exposed	25	25	25	25	25	22	25	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
80	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	11	17	10	8
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	17	18	18	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	17	20	19	15	18	16	13	16	14	10
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	13
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	12	13	13	10	11	12	8	13	9	11
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	11	14	13	9	14	11	13	13	10	11	13	9	13	10	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	14	11	16	12	10
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	16	14	17	17	14	11	17	12	10	17	10	8	15	9	11	14	12	10	12
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	19	19	19	18	18	16	17	17	14	16	15	12	15	13	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11		
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	13	9	15	11	12	13	10	10
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7		
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	13	9	15	11	12	13	9	11	12	9
			Exposed	15	15	15	15	15	15	15	15	15	12	15	15	11	15	14	10	15	15	13	9	15	11	12	13	9	11	12	9	9	10	8	8	9	7	11	8	6		
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	15	18	13	11	17	11	9	16	10	8	15	9	11				
			Exposed	19	19	19	19	19	19	19	19	17	19	18	15	19	16	14	19	15	12	19	14	11	19	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	21	20	20	18	19	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	23	23	23	23	23	22	23	23	20	23	23	18	22	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

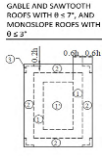
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

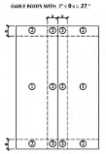
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

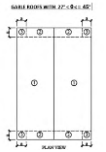
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

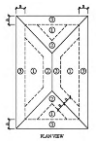












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

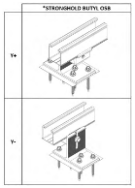
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12			
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	15	10	8
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	17	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	12			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	11	12	13	9	11	12	8			
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	13	12	10	11			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10	14	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	11	15	12	10	15	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	18	18	18	17	17	16	16	16	14	15	15	12	15	13	11
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	18	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12	13	10	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	9	10	11	13	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	13	16	13	11	16	11	9	15	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	16	14	17	15	12	17	14	11	17	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	18	18	18	15	17	17	13	16	14	11	14	13	10	13	11	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12			
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	10
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	16	14	11	14	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	11			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	10	11	11	13	9	11	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	13	11	10	11			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	14	11	14	12	10	13	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	12	10	14	10	8	14	9	11	14	12	10	12	11	9
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	15	15	14	14	14	12	14	13	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	16	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	10	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	9	12	12	11	12	12	9	10	11	12	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6	
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	11	9	14	9	11	14	9	11			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	12	9	15	10	12	15	8	11	13	11	9	11	10	8	10	9	7			
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	17	15	16	16	13	15	14	11	14	13	10	13	11	9	
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	18	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

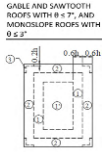
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

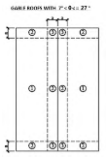
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

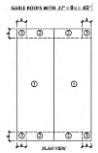
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

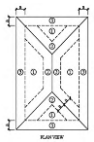












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

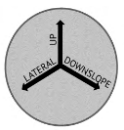
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

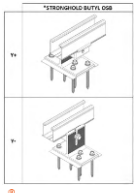
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	33	34	34	29	34	34	26	34	34	23	34	30	21	34	27	19	34	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	34	30	21	34	27	19	33	24	17	30	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	34	34	29	34	34	25	34	31	23	34	28	20	34	25	18	32	23	17	29	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	34	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	35	35	35	35	35	31	35	34	28	35	30	25	35	27	22	35	25	20	35	23	18	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	35	27	22	35	24	20	35	22	18	34	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	35	35	35	35	35	33	35	35	30	35	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	8
			Exposed	35	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	34	32	22	34	28	20	34	25	18	32	23	16	29	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	34	27	19	33	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	35	29	24	35	26	21	35	23	19	35	21	17	33	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	35	35	28	35	32	25	32	29	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	34	26	18	33	23	16	29	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	31	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	35	24	19	35	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4
10	B	0-7	Interior	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	27	19	28	25	17	28	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	28	28	21	28	27	19	28	24	17	28	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	28	28	28	28	28	25	28	28	23	28	28	20	28	25	18	28	23	17	28	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	32	32	32	32	32	31	32	32	28	32	30	25	32	27	22	32	25	20	32	23	18	32	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	32	27	22	32	24	20	32	22	18	32	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9
			Exposed	34	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	28	28	22	28	28	20	28	25	18	28	23	16	28	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	28	27	19	28	24	17	28	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	32	29	24	32	26	21	32	23	19	32	21	17	32	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	34	34	28	34	34	32	34	34	30	34	34	27	34	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	12	10	8
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	28	26	18	28	23	16	28	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	28	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	33	24	19	33	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4
20	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	15	20	18	12	20	15	11	18	13	9	16	12	8	14	10	7
			Exposed	20	20	20	20	20	19	20	20	17	20	20	15	20	19	13	20	17	12	20	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	15	21	18	13	21	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	23	18	25	19	16	25	16	13	24	14	11	21	12	10	18	11	9	16	9	8	14	8	7
			Exposed	25	25	22	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	7
			Exposed	28	28	27	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	20	20	14	20	18	13	20	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	21	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	25	25	24	25	25	21	25	23	19	25	21	17	25	19	15	25	17	14	25	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	25	18	15	25	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	26	28	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	20	17	12	20	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	21	21	16	21	19	14	21	17	13	21	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	26	24	19	26	21	17	26	19	15	26	17	14	26	15	13	24	14	11	22	13	10	19	11	9	14	8	6	12	7	6	10	6	5	9	5	7	6	5	4
			Exposed	26	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4

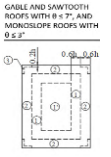
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

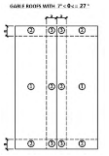
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

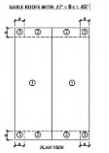
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

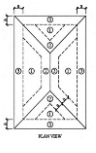












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

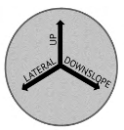
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

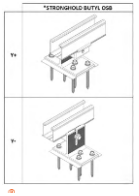
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	11	16	13	9	16	12	8	14	10	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	16	11	16	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	13	9	15	11	8	13	10	7	12	9	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16	21	16	13	21	14	11	21	12	10	18	11	9	16	9	8
			Exposed	21	21	21	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	22	20	16	20	17	14	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	16	16	14	16	16	13	16	16	11	16	15	10	16	13	9	16	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	11	16	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	17	14	21	15	13	21	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	23	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	6	8	5	5	7	5	5	6	6	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	6	7	5	5	6	6	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4
40	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	11	15	13	9	15	12	8	14	10	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6	10	8	6	9	7	5	8	6	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	9	15	11	8	13	10	7	12	9	6	10	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13	17	14	11	17	12	10	17	11	9	16	9	8	14	8	6
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	12	10	17	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	18	17	14	17	15	12	15	13	10	13	12	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	13	11	17	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	20	20	18	20	20	16	20	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	6	8	5	5	7	5	5	6	6	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	6	7	5	5	6	6	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4
50	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	8	13	10	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	11	13	13	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10	15	11	9	14	9	8	13	9	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	14	12	15	12	10	15	10	9	15	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16	16	16	14	16	15	12	15	13	10	13	12	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	8	13	10	7	13	9	6	11	8	5	10	7	5
			Exposed	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	12	8	13	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	13	10	13	12	9	13	10	7	12	9	6	10	8	6	9	7	5	8	6	7	7	5	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	13	15	13	11	15	11	9	14	9	8	14	8	7	13	7	6	11	6	5
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	15	17	16	13	15	14	11	13	12	9	12	10	8	10	9	7	9	8	6	8	7	6
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	14	14	12	14	14	10	14	13	9	14	12	8	14	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	14	11	16	13	10	16	11	9	15	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	16	15	13	16	14	11	16	12	10	16	11	9	16	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	17	18	18	15	17	17	14	17	16	13	15	13	10	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	19	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	4	5	5	4

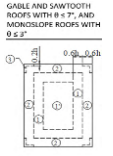
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

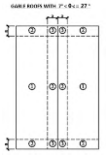
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

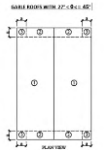
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

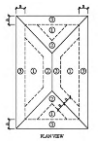












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

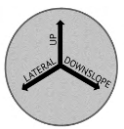
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

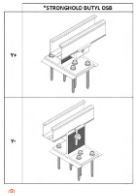
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6	10	7	5	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	11	9	13	9	8			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	9	13	9	7	13	8	6	12	7	6	10	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	14	14	12	13	13	10	13	12	9			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	7	11	9	6	10	8	6	9	7	5	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	9	13	11	9	13	9	8	12	8	7	12	7	6	11	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	5	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	9	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	10	8	5	9	6	7	7	5	6	6	5	5	6	6	5	7	5	5	6	6	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	13	10	14	11	9	14	9	7	13	8	6	12	7	6	10	6	5	9	5	7
			Exposed	14	14	13	14	14	10	14	14	11	9	14	10	8	14	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	6	5	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	16	16	15	16	16	14	15	15	13	14	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	17	17	15	17	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
70	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7		
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	7	5	9	7	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6		
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	9	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	9	12	9	7	12	8	6	12	7	6	10	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	12	12	10	12	12	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	5	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	6	9	8	5	9	7	7	8	6	6	7	5	5	6	7	5	6	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	8	6	9	7	5	8	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	11	11	7	11	9	8	10	9	6	10	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	12	12	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	5	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	7	10	8	5	9	6	7	8	5	6	7	5	5	6	7	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	6	10	8	5	9	6	7	7	5	6	6	5	5	6	6	5	6	6	4	5	5	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	12	12	9	12	9	7	12	8	6	11	9	7	12	8	6	11	7	5
			Exposed	13	13	13	13	13	11	13	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	13	13	13	11	12	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
80	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	6	10	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	10	11	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	12	12	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	6	8	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	7	5	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	6	8	7	5	8	6	6	7	5	5	6	7	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	9	10	9	8	10	8	7	10	7	6	9	6	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	6	5	9	5	7	8	6	5	7	6	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	10	12	11	11	11	11	9	10	10	8	10	9	7	9	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6	6	5	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	9	7	9	8	6	9	7	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	6	8	7	5	7	6	7	6	7	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	7	9	8	6	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	9	6	9	8	5	9	6	7	8	5	6	7	5	5	6	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	7	6	10	6	5	9	5	6	8	7	5
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	12	12	11	11	11	10	9	10	10	8	10	9	7	8	7	5	7	5	5
			Exposed	14	14	14	14	14	13	14	14	12	14	14	11	13	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

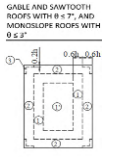
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

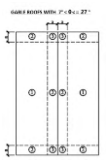
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

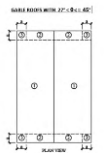
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

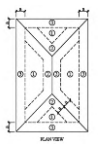












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

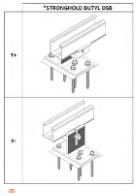
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7			
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	6	9	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	10	10	10	10	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7	7	6	6	7	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	9	7	9	9	6	9	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	9	8	6	
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6			
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	7	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	6	7	7	5	5	6	6	4	5	6	4			
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	5	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	8	6	7	7	5	6	6	5	5	5	4	7	5	3			
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	6	9	6	5	9	5	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	8	6	10	7	6	9	5	6	8	7	6	7	5	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	11	11	11	11	9	10	10	8	10	9	7	8	8	6	7	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	12	12	10	12	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
100	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	7	8	8	6	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	5	5
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	6	9	6	5	8	5	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	8	9	8	7	9	7	6	9	6	5	9	5	6	8	7	6	7	6	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	8	8	6	7	7	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	9	11	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

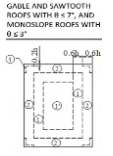
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

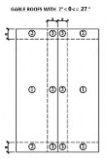
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

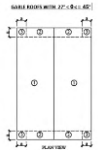
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

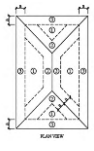












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

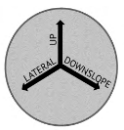
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

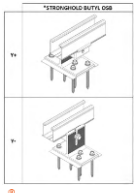
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	57	57	55	57	57	49	57	57	44	57	57	39	57	51	35	57	46	32	57	42	29	49	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	57	51	35	57	45	31	56	40	28	50	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	57	57	48	57	57	43	57	53	38	57	47	34	57	43	31	54	39	28	49	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	57	42	31	52	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	58	58	58	58	58	52	58	57	46	58	51	42	58	46	38	58	42	34	58	38	31	56	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	58	46	38	58	41	33	58	36	30	57	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	59	59	59	59	59	59	59	59	56	59	59	50	59	58	45	59	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	59	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	57	54	37	57	48	33	57	43	30	54	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	48	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	57	45	33	56	40	29	50	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	58	49	40	58	43	35	58	39	32	58	35	28	55	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	55	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	59	59	48	59	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	57	44	31	55	39	27	49	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	52	37	27	46	33	24	41	29	22	37	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	58	40	33	58	36	29	56	32	26	50	29	24	45	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	45	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	17	10	8	14	9	10	11	10	7
		27-45	Interior	56	50	39	50	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
10	B	0-7	Interior	46	46	46	46	46	46	46	46	44	46	46	39	46	46	35	46	46	32	46	42	29	46	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	46	46	35	46	45	31	46	40	28	46	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	47	47	47	47	47	43	47	47	38	47	47	34	47	43	31	47	39	28	47	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	47	42	31	47	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	53	53	53	53	53	52	53	53	46	53	51	42	53	46	38	53	42	34	53	38	31	53	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	53	46	38	53	41	33	53	36	30	53	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	57	57	57	57	57	57	57	57	56	57	57	50	57	57	45	57	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	57	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	46	46	37	46	46	33	46	43	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	46	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	47	45	33	47	40	29	47	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	53	49	40	53	43	35	53	39	32	53	35	28	53	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	53	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	57	57	48	57	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	46	44	31	46	39	27	46	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	47	37	27	47	33	24	41	29	22	37	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	58	40	33	58	36	29	56	32	26	50	29	24	45	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	45	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	17	10	8	14	9	10	11	10	7
		27-45	Interior	56	50	39	50	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
20	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	25	34	30	21	34	26	18	31	23	16	27	20	14	24	17	12
			Exposed	34	34	34	34	34	31	34	34	28	34	34	25	34	33	23	34	30	21	34	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	26	35	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	35	35	31	35	35	28	35	34	25	35	30	22	35	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	38	31	42	32	26	42	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	42	42	38	42	41	33	42	36	30	42	33	27	42	30	24	42	27	22	42	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	47	47	45	47	47	40	47	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	34	34	34	34	34	33	34	34	30	34	34	27	34	34	24	34	31	22	34	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	34	34	24	34	31	21	34	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	35	35	33	35	35	29	35	35	26	35	32	23	35	29	21	35	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	35	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	42	42	40	42	42	35	42	39	32	42	35	28	42	31	26	42	28	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	42	31	26	42	28	23	42	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	34	34	31	34	34	27	34	34	25	34	32	22	34	29	20	34	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	34	28	20	34	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	35	35	27	35	33	24	35	29	22	35	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	44	40	33	44	36	29	44	32	26	44	29	24	44	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	44	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	48	48	39	48	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

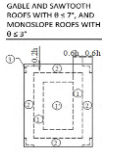
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

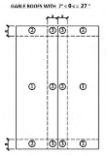
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

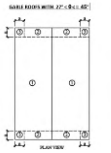
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

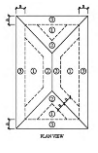












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

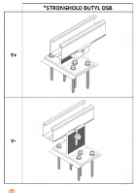
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	26	18	27	23	16	27	20	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	27	19	27	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	25	19	27	22	16	26	19	14	23	17	12	20	15	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	25	18	27	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	32	26	35	27	22	35	24	19	35	20	17	31	18	15	28	16	13			
			Exposed	35	35	35	35	35	33	35	35	30	35	33	27	35	30	24	35	27	22	35	25	20	35	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16			
			Exposed	39	39	39	39	39	39	39	39	36	39	39	32	39	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	12	21	15	11	19	14	10	17	12	8			
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	24	18	27	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	27	27	21	27	26	19	27	23	17	27	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	35	35	35	35	35	35	35	35	32	35	35	28	35	31	26	35	28	23	35	26	21	35	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	35	31	26	35	28	23	35	25	20	35	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	38	39	39	34	39	39	31	38	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	39	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	36	36	33	36	36	29	36	32	26	36	29	24	36	26	21	36	24	19	36	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	36	26	21	36	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	41	41	39	41	41	35	41	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	23	16	25	20	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	25	16	25	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	25	19	26	22	16	26	19	14	23	17	12	20	15	11
			Exposed	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	25	18	26	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	24	19	29	20	17	29	18	15	28	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	27	22	29	25	20	29	21	17	29	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	33	33	27	31	30	23	29	26	20	25	23	18	22	20	16
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	17	25	21	15	25	18	12	21	15	11	19	14	10	17	12	8			
			Exposed	25	25	24	25	25	21	25	25	19	25	25	17	25	22	16	25	20	14	25	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	24	18	26	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	26	26	21	26	26	19	26	23	17	26	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	26	29	28	23	29	26	21	29	22	18	29	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	29	29	26	29	28	23	29	25	20	29	22	18	29	20	17	29	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11			
			Exposed	34	34	31	34	34	27	34	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	31	31	31	26	31	29	24	31	26	21	31	24	19	31	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	31	26	21	31	23	19	31	21	17	31	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	36	36	36	36	36	35	36	36	31	35	35	28	34	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
50	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	20	14	22	17	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	16	22	22	16	22	22	16	22	19	14	22	17	12	20	15	11
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	19	14	22	17	12	20	15	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11			
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	24	19	26	20	17	25	18	15	24	16	13
			Exposed	26	26	26	26	26	24	26	26	26	26	26	24	26	26	22	26	26	22	26	25	20	26	21	17	26	18	15	23	13	11	20	12	10	18	10	9			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	28	28	23	26	26	20	25	23	18	22	20	16
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	14	22	18	12	21	15	11	19	14	10	17	12	8
			Exposed	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	20	14	22	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	20	15	22	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	22	22	22	22	22	19	22	22	17	22	22	17	22	22	14	22	19	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	24	16	13	23	14	12	21	12	10	19	11	9
			Exposed	26	26	26	26	26	23	26	25	20	26	22	18	26	20	17	26	18	15	26	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	28	29	29	26	27	27	22	25	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	30	30	30	30	30	27	30	30	25	30	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	23	17	23	23	17	23	20	14	23	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	23	23	20	23	23	18	23	23	16	23	20	14	23	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	24	24	24	24	24	24	24	24	22	24	24	19	24	24	18	24	22	16	24	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	24	24	18	24	21	16	24	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	27	24	19	27	22	18	27	18	15	26	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	27	26	21	27	23	19	27	21	17	27	19	15	27	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	32	32	32	32	32	32	32	32	31	31	31	28	30	30	26	29	29	23	28	27	21	26	23	18	22	20	16	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	32	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

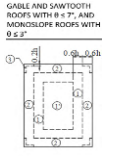
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

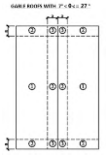
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

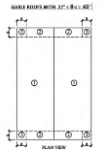
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

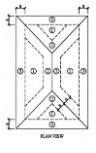












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

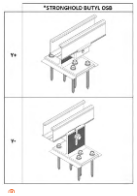
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	10	18	13	9	16	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	11			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	20	17	22	18	15	21	16	13					
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	21	17	23	18	15	23	15	13	23	13	11	20	12	10	18	10	9			
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	25	23	24	24	20	23	23	18	22	20	16			
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	12	18	15	11	18	14	10	17	12	8			
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	13	18	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8			
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	11	18	13	10	16	11	8	14	10	11					
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	13	18	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	22	19	15	22	16	13	21	14	12	20	12	10	19	11	9
			Exposed	23	23	23	23	23	23	23	20	23	22	18	23	20	17	23	18	15	23	17	14	23	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9			
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	17	16	12	15	14	11			
			Exposed	27	27	27	27	27	27	27	25	27	27	22	27	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11			
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	20	14	20	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	20	20	20	20	20	20	20	20	16	20	20	14	20	19	13	20	17	12	20	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	19	20	20	18	20	20	16	20	20	15	20	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	20	20	18	20	20	16	20	19	14	20	17	13	20	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	22	18	24	18	15	23	16	13	22	13	11	20	12	10	18	10	8	16	9	11	
			Exposed	24	24	21	24	23	19	24	21	17	24	19	15	24	17	14	24	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	29	29	29	29	29	29	29	29	29	28	28	28	27	27	26	27	27	23	26	26	21	24	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	29	29	26	29	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
70	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	10	16	13	9	16	11	12			
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	11			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	10	16	12	9	15	11	12	13	10	11
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	15	19	16	13			
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	15	20	15	13	20	13	11	20	12	10	18	10	9
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	20	21	21	18	20	20	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	11	16	14	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	13	9	16	11	8	14	10	11	12	9	9	11	12	8		
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	15	11	16	16	12	16	15	11	16	14	10
			Exposed	16	16	16	16	16	16	16	16	16	15	16	14	16	16	13	16	16	11	16	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7			
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	19	15	19	16	13	19	14	12	18	12	10	17	11	9
			Exposed	20	20	20	20	20	20	20	20	18	20	20	17	20	18	15	20	17	14	20	14	12	20	12	10	18	10	9	16	9	11	14	8	10	12	11	9			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	21	19	15	19	17	13	16	15	12
			Exposed	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	18	23	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	15	10	17	14	9	16	11	12	14	10	11
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	15	11	17	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	17	12	18	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	18	18	18	18	18	16	18	18	14	18	17	13	18	16	11	18	16	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	18	15	21	16	13	20	13	11	19	12	10	18	10	8	16	9	11
			Exposed	22	22	21	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	23	24	24	21	22	22	18	21	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	26	26	26	26	26	23	26	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
80	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	13		
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	13
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	19	19	18
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	18	21	19	15	19	17	13	16	15
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	14	12	14	14	11	14	14	12	14	14	11
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	13
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	21	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	12	14	10	11
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7			
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	11	15	12	9	15	11	12	13	9	11	12	8	9
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	15	10	15	15	10	15	11	12	13	10	10	11	8	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	18	13	11	18	12	10	17	10	8	16	9	11
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	17	14	19	15	13	19	14	12	19	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	22	22	21	21	21	18	21	19	15	18	17	13	16	15	12	14	13	10	13	11	9
			Exposed	24	24	24	24	24	24	23	24	24	20	23	23	18	23	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

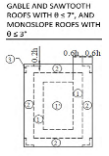
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

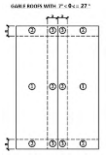
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

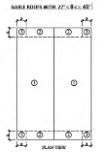
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

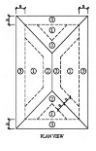












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

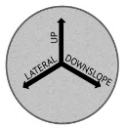
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

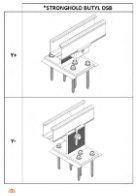
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12		
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	10	11
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	17	17	16
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	15	18	17	13	16	15	12	15	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	11	12	12	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	11	12	9	9	11	12	8		
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	11	8	12	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	8	12	10	11	12	8	9	10	11	8	9	10	7		
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	12	15	12	10	15	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	12	15	12	10	15	10	9	15	9	11	14	8	10	12	11	9		
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	19	19	19	18	18	18	17	17	16	16	16	14	16	16	12	15	14	11
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11		
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	13	9	14	11	12	14	10	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	9	14	11	12	13	10	10	11	8	9	10	11	8	9	10	7		
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	12	9	14	11	12	13	9	11	12	8	9		
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	10	14	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6		
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	16	12	10	16	10	8	15	9	11		
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	14	12	17	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7		
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	19	19	18	18	18	15	17	17	13	16	15	12	14	13	10	13	11	9		
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	21	21	17	21	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9		
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11		
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11		
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	12	10	14	10	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16		
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	17	17	13	16	15	12	15	13	10		
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	11	11	9	9	11	12	8		
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	11		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	11	11	8	9	10	11	7		
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	10	14	10	9		
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	10	14	14	10	9	14	9	11	14	8		
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	14	17	15	12	15	13	10		
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	13	17	17	13	16	15	12		
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	10	11	8	9	10	11	8	9	10	7		
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	11	12	8	9		
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	10	12	12	10	12	11	12	12	9	10	11	12	9	10	11	8	8	9	7	11	8	6		
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	8	14	9	11		
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	13	15	14	12	15	12	10	15	10	8	15	9	11	13	12	10	11	10	8	10	9	7		
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	18	18	18	17	17	15	16	16	13	15	15	12	14	13	10	13	11	9		
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	19	15	19	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9		

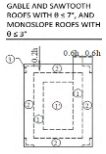
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

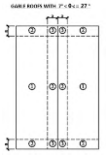
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

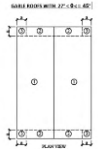
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

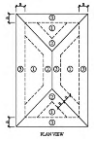












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

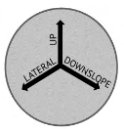
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

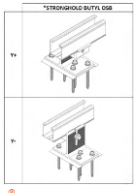
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	29	29	27	29	29	24	29	29	22	29	28	19	29	25	17	29	23	16	29	21	14	24	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	29	25	17	29	22	15	28	20	14	25	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	29	29	24	29	29	21	29	26	19	29	23	17	29	21	15	27	19	14	24	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	29	29	29	29	29	26	29	28	23	29	25	21	29	23	19	29	21	17	29	19	15	28	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	29	23	19	29	20	16	29	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	29	27	18	29	24	16	29	21	15	26	19	13	24	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	24	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	29	22	16	27	20	14	24	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	29	24	20	29	21	17	29	19	16	29	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	9	7	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
	D	0-7	Interior	29	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	6	6	5	5	4	7	5	5	3
		7-20	Interior	26	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	29	20	16	29	18	14	28	16	13	25	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	8	5	4	5	4	3	4	3	3
		27-45	Interior	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	7	6	5	6	5	4	5	4	3
10	B	0-7	Interior	23	23	23	23	23	23	23	23	22	23	23	19	23	23	17	23	23	16	23	21	14	23	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	23	23	17	23	22	15	23	20	14	23	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	6	10	7	5	9	6	7	7	5	6	6	5	5
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	27	27	27	27	27	26	27	27	23	27	25	21	27	23	19	27	21	17	27	19	15	27	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	27	23	19	27	20	16	27	18	15	27	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	23	22	16	23	20	14	23	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	27	24	20	27	21	17	27	19	16	27	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	9	7	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
	D	0-7	Interior	23	22	15	23	19	13	23	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	3
		7-20	Interior	23	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	27	20	16	27	18	14	27	16	13	25	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	8	5	4	5	4	3	4	3	3
		27-45	Interior	24	24	19	24	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	7	6	5	6	5	4	5	4	3
20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	10	17	13	9	15	11	8	13	10	7	12	9	6
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	15	10	17	13	9	16	11	8	13	9	6	10	7	5	9	6	7	8	5	6	7	5	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	17	17	15	17	17	14	17	17	12	17	15	11	17	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	16	13	21	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	21	21	19	21	20	16	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	23	23	22	23	23	20	23	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	17	17	12	17	15	10	17	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	17	17	16	17	17	14	17	17	13	17	16	12	17	14	10	17	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	17	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	21	21	20	21	21	17	21	19	16	21	17	14	21	15	13	21	14	11	21	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	21	15	13	21	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	23	23	23	23	23	21	23	23	19	23	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	4
	D	0-7	Interior	17	17	15	17	17	13	17	17	12	17	16	11	17	14	10	17	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6	7	5	5
			Exposed	17	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	3
		7-20	Interior	17	17	13	17	16	12	17	14	11	17	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	22	20	16	22	18	14	22	16	13	22	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	8	5	4	5	4	3	4	3	3
		27-45	Interior	24	24	19	24	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	7	6	5	6	5	4	5	4	3

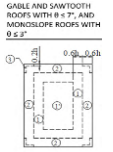
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

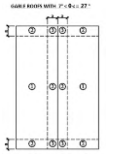
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

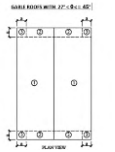
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

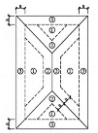












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

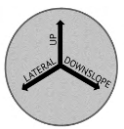
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

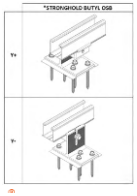
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	9	14	11	8	13	9	7	11	8	6	10	7	5
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	17	12	9	17	10	8	15	9	7	14	8	6
			Exposed	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	13	10	13	13	8	13	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	13	13	12	13	13	10	13	13	9	13	12	8	13	11	8	13	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13	17	14	11	17	13	10	17	11	9	16	9	7	14	8	6	12	9	7	10	6	5	9	5	7
			Exposed	17	15	13	17	14	11	17	12	10	17	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	4	8	7	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	19	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	20	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4	7	5	5
		7-20	Interior	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	14	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	18	18	16	18	18	14	18	16	13	18	14	12	18	13	10	18	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	18	13	10	18	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	8	5	4	5	4	3
		27-45	Interior	21	21	19	21	21	17	21	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	7	6	5	6	5	4	6	5	4
40	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	9	6	7	8	5	6			
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	11	8	13	9	7	11	8	6			
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	12	9	13	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6			
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	9	15	10	8	14	9	7			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	10	8	15	9	7	13	7	6	11	6	5	10	6	5			
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	13	15	15	11	14	13	10	12	11	9			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6			
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8	12	10	7	12	9	6	10	7	5	9	6	7			
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4			
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	12	9	13	11	8	13	9	7	12	8	6	10	7	5	9	6	6			
			Exposed	13	13	10	13	13	9	13	11	8	13	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4			
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	11	15	13	10	15	11	9	14	9	7	13	8	6	12	7	6	10	6	5			
			Exposed	15	15	13	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5			
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	8	7	6			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6			
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	10	13	13	10	13	13	10	13	13	10	12	12	9	12	11	8	12	10	7			
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4			
		7-20	Interior	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5			
			Exposed	14	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3			
		20-27	Interior	18	18	16	18	18	14	18	16	13	18	14	12	18	13	10	18	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6			
			Exposed	18	13	10	18	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	8	5	4			
		27-45	Interior	21	21	19	21	21	17	21	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5			
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	7	6	5	6	5	4			
50	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7			
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	7	11	8	6	10	7	5			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	7	11	8	6	9	7	5	8	6	7	7	5	6			
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	11	13	12	9	13	10	8	12	9	7			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	13	10	13	10	8	13	9	7	13	7	6	11	6	5	10	6	5			
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	11	13	13	10	12	11	9			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6			
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	10	7	11	9	6	10	7	5	9	7	7			
			Exposed	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	10	7	11	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4			
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	10	11	11	7	11	8	6	10	7	5	9	6	5	8	5	6			
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	10	8	5	9	6	5	7	5	6	6	5	4	7	5	5	6	6	4			
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	9	12	9	7	12	8	6	11	7	6	10	6	5			
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5			
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	13	11	13	12	9	11	10	8	10	9	7	8	8	6			
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6			
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	9	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7			
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	7	5	5	6	6	4			
		7-20	Interior	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5			
			Exposed	12	12	9	12	10	8	12	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3			
		20-27	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	14	12	9	14	11	9	13	9	7	13	8	6	11	6	5	10	6	5	9	5	6			
			Exposed	14	13	10	14	11	9	14	10	8	14	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	8	5	4			
		27-45	Interior	16	16	16	16	16	16	16	16	15	16	16	14	15	15	13	14	14	11	14	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5			
			Exposed	16	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	7	6	5	6	5	4			

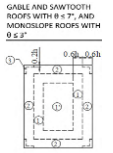
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

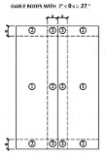
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

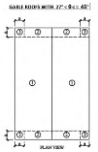
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

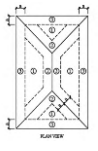












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

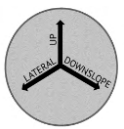
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

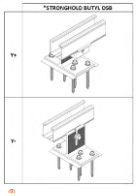
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	7	8	5	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	7	7	5	6
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	13	13	10	11	11	9	11	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	6	9	7	5	9	7	7	8	6	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	5	9	6	5	8	6	6	7	5	5			
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	9	7	11	8	6	10	7	6	10	6	5	9	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	9	5	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	11	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	6	10	8	5	9	6	7	7	5	6	6	5	5	6	4	5	5	4	6	4	5	3
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	10	10	9	10	10	8	10	9	7	10	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	6	4	5	5	4	6	4	3	5	4	3	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	9	12	9	7	11	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	11	13	13	10	12	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4
			Exposed	14	14	13	14	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	7	6	7	6	5	6	5	4
70	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	5	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	7	8	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6	9	7	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	7	6	10	6	5	9	6	5	8	5	6
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	10	10	10	9	10	10	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	6	7	5	5			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	8	10	10	8	10	10	8	10	9	7	10	8	6	9	7	6	9	7	5	8	6	4
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	8	7	10	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	11	11	8	9	9	7
			Exposed	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5			
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	5	8	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	6	5
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	8	6	9	8	6	9	7	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	7	9	9	7	9	9	7	9	8	6	9	7	6	9	7	5	8	6	6	8	5	6
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
80	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	6
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	5
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	6	5	7	6	5	7	6	6	6	5	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	5	6	6	5	6	6	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	7	6	8	7	6	7	6	5	6	6	5
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	8	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	3
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	6	7	4
			Exposed	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	7	5	8	6	7	8	6	5	7	5	6	6	5	5	6	4	5	5	4	6	4	5	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	8	6	8	7	5	8	6	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	7	6	9	7	5	8	5	6	7	6	5	6	6	5	6	5	4	5	5	3
		27-45	Interior	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	7	6	6	5	6	5	6	4
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	7	6	6	5	6	5	6	4

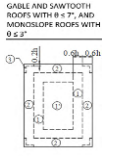
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

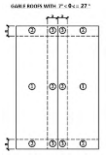
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

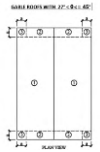
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

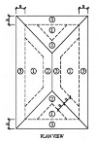












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

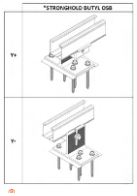
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6		
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	6	5	8	5	6
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	8	8	9	8	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	6	7	6	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	6	8	6	5	8	5	6	7	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	8	8	6	7	7	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	5	5	6	4	5	5	6	6	7	5	5	4	7	5	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	7	5	6	6	6	7	5	5	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	8	6	5	8	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	7	8	8	7	8	8	6	8	8	6	7	6	5	7	6	5	6	5	4	5	4	3
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5	6	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	7	6	7	6	5	6	5	4
100	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6		
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5	5	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	6	5	7	5	6	7	5	6
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5
	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	4	5	6	4		
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	4	7	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	5	7	7	5	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	5	6	7	6	5	6	5	4	6	5	4
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	7	6	7	6	5	6	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	7	5	6	6	4	5	6	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	7	6	5	7	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	7	8	8	7	8	8	6	8	8	6	7	6	5	7	6	5	6	5	4	5	4	3
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	7	8	8	6	7	7	6	7	6	5	6	5	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	9	9	7	8	7	6	7	6	5	6	5	6	5	7	6	7	6	5	6	5	4

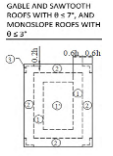
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

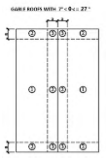
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

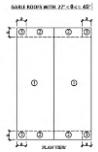
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

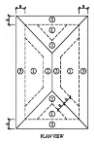












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

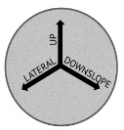
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

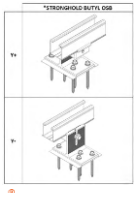
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	54	56	56	48	56	56	43	56	55	38	56	50	35	56	45	31	56	41	29	48	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	56	50	35	56	44	31	55	39	27	49	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	56	56	47	56	56	42	56	51	37	56	46	34	56	42	30	53	38	28	48	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	56	41	30	51	37	27	46	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	57	57	57	57	57	51	57	56	45	57	50	41	57	45	37	57	41	33	57	37	31	55	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	57	45	37	57	40	33	57	36	29	56	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	57	57	57	54	57	57	49	57	56	44	57	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	57	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	56	53	37	56	47	32	56	42	29	52	37	26	47	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	47	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	56	44	32	54	39	28	48	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	57	48	39	57	42	35	57	38	31	57	34	28	54	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	57	57	47	57	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	56	43	30	54	39	27	48	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	50	36	27	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
10	B	0-7	Interior	45	45	45	45	45	45	45	45	43	45	45	38	45	45	35	45	45	31	45	41	29	45	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	45	45	35	45	44	31	45	39	27	45	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	45	45	45	45	45	42	45	45	37	45	45	34	45	42	30	45	38	28	45	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	45	41	30	45	37	27	45	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	52	52	52	52	52	51	52	52	45	52	50	41	52	45	37	52	41	33	52	37	31	52	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	52	45	37	52	40	33	52	36	29	52	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	56	56	56	56	56	56	56	56	54	56	56	49	56	56	44	56	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	56	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	45	45	37	45	45	32	45	42	29	45	37	26	45	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	45	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	45	44	32	45	39	28	45	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	52	48	39	52	42	35	52	38	31	52	34	28	52	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	52	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	56	56	47	56	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	45	43	30	45	39	27	45	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	45	36	27	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
20	B	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	29	33	33	24	33	29	21	33	25	18	31	22	15	27	19	14	24	17	12
			Exposed	33	33	33	33	33	31	33	33	27	33	33	25	33	32	22	33	29	20	33	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	33	41	37	31	41	31	26	41	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	41	41	37	41	40	33	41	36	29	41	32	26	41	29	24	41	26	22	41	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	46	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	46	46	44	46	46	39	46	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	33	33	33	33	33	32	33	33	29	33	33	26	33	33	24	33	31	21	33	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	33	33	24	33	30	21	33	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	34	34	32	34	34	28	34	34	26	34	31	23	34	28	21	34	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	34	28	21	34	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	41	41	39	41	41	35	41	38	31	41	34	28	41	31	25	41	28	23	41	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	41	31	25	41	27	22	41	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	46	46	46	46	46	46	46	46	37	46	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	33	33	30	33	33	24	33	31	22	33	28	20	33	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10	10	10	10
			Exposed	33	28	20	33	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	34	34	27	34	34	29	21	34	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9	10	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	43	39	32	43	35	29	43	31	26	43	28	23	43	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	43	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	47	47	39	47	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

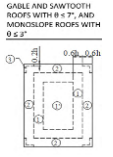
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

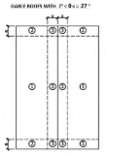
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

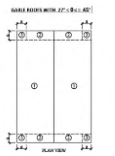
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

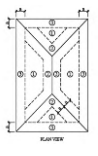












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

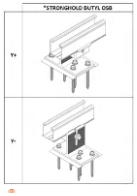
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	21	27	25	18	27	24	22	15	27	19	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	19	27	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18	27	21	16	26	19	14	22	16	12	20	14	11
			Exposed	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	18	27	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	31	34	31	26	34	27	22	34	23	19	34	20	16	30	18	14	27	16	13
			Exposed	34	34	34	34	34	33	34	34	29	34	32	26	34	29	24	34	26	22	34	24	20	34	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	38	38	38	38	38	38	38	38	35	38	38	32	38	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	24	17	27	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	27	27	24	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	27	27	21	27	25	18	27	27	22	17	27	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	31	25	34	28	23	34	25	21	34	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	34	31	25	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	37	38	38	33	38	38	30	38	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	38	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	27	27	20	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	36	36	32	36	35	29	36	31	26	36	28	23	36	25	21	36	23	19	36	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	36	25	21	36	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	40	40	39	40	40	34	40	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	18	25	22	15	25	19	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	20	25	25	19	25	22	16	25	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	21	16	25	19	14	22	16	12	20	14	11
			Exposed	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	18	25	22	16	25	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	23	19	29	20	16	28	18	14	27	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	29	26	22	29	24	20	29	20	17	29	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	32	32	26	30	29	23	28	25	20	25	22	17	22	20	15
			Exposed	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	33	26	33	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	20	25	24	17	25	20	14	24	17	12	21	15	11	18	13	9	16	12	13	14	10	11
			Exposed	25	25	24	25	25	21	25	25	19	25	24	17	25	22	15	25	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	25	25	21	25	25	18	25	22	17	25	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	21	18	28	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	30	33	33	30	33	33	28	32	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	33	33	30	33	33	27	33	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	25	18	26	23	16	26	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	26	26	20	26	25	17	26	22	16	26	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	29	31	31	26	31	28	23	31	28	23	31	28	23	31	25	21	30	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	31	25	21	31	23	19	31	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	35	35	35	35	35	34	35	35	31	34	34	28	33	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
50	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	15	21	19	14	21	17	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	19	21	21	16	21	19	13	21	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	16	21	19	14	21	16	12	20	14	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	16	21	19	14	21	16	12	19	14	10	17	12	9	15	11	10
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	19	25	20	16	24	18	14	24	16	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	22	25	24	20	25	25	20	17	25	17	14	25	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	26	27	27	23	26	25	20	24	22	17	22	20	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10	14	13	10
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	20	14	21	17	12	21	15	11	18	13	9	16	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	20	14	21	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	15	21	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	21	21	21	21	21	18	21	21	17	21	20	15	21	18	13	21	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	21	18	25	18	15	24	16	13	23	14	11	21	12	10	18	11	9
			Exposed	25	25	25	25	25	22	25	24	20	25	22	18	25	20	16	25	18	15	25	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	25	26	26	21	25	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	22	23	20	23	23	18	23	23	16	23	23	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10		
			Exposed	23	23	20	23	23	17	23	22	16	23	20	14	23	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	23	23	23	23	23	23	23	23	23	19	23	23	19	23	17	23	21	16	23	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	23	23	17	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	23	27	25	21	27	23	19	27	21	17	26	18	15	25	15	13	23	13	11	20	11	9	17	10	8	15	9	11		
			Exposed	27	25	21	27	23	19	27	20	17	27	18	15	27	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	31	31	31	31	31	31	31	31	31	28	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9		
			Exposed	31	31	25	31	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

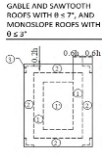
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

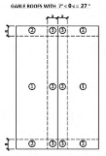
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

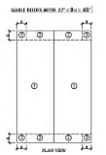
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

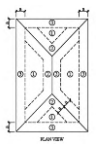












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

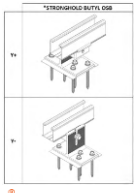
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	14	18	17	12						
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	13	18	16	12	18	14	10	17	13	9	15	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	18	14	18	17	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	16	22	18	14	21	16	13			
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	20	17	22	17	14	22	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	24	24	23	23	20	22	22	17	21	20	15						
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	17	12	18	15	11	18	13	9	16	12	13
			Exposed	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	17	12	18	15	11	17	13	9	15	11	13	14	10	11
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	17	12	18	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	18	15	21	16	13	20	14	11	20	12	10	18	11	9			
			Exposed	22	22	22	22	22	22	20	22	22	18	22	20	16	22	18	15	22	16	14	22	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9			
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	21	23	23	18	21	20	16	19	17	14	17	15	12	15	13	11
			Exposed	26	26	26	26	26	26	24	26	26	22	26	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11		
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	20	20	20	20	20	17	20	20	16	20	20	14	20	18	13	20	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	19	14	20	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	20	20	17	20	20	15	20	19	14	20	17	12	20	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	23	18	15	22	15	13	21	13	11	20	11	9	17	10	8	15	9	11	
			Exposed	24	24	21	24	23	19	24	20	17	24	18	15	24	16	14	24	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	27	27	25	26	26	23	25	25	21	24	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	28	28	25	28	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
70	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	12	15	14	10	15	13	9	15	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	11			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	10	16	12	9	15	11	12	13	9	10
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	18	14	19	16	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	19	15	12	19	13	11	19	11	9	17	10	8
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	20	20	20	17	19	19	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	13	9	15	12	13			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	13	9	15	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	16	16	12	16	15	11	16	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	14	19	16	13	19	18	14	19	16	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	19	15	12	19	13	11	19	11	9	17	10	8
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	20	20	20	17
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	14	10	17	13	9	15	11	12	13	10	10
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	12	17	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	15	11	17	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	17	21	18	15	20	15	13	19	13	11	19	11	9	17	10	8	15	9	11
			Exposed	21	21	21	21	21	19	21	20	17	21	18	15	21	16	14	21	15	12	21	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	24	23	23	23	21	22	22	18	20	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	25	25	25	25	25	22	25	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
80	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	16	13
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	17	18	18	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	13
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	12	13	10	11	12	13	9	11	12	8
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	13	9	14	11	13	13	10	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	11	14	14	10	14	13	9	14	11	12	13	9	10	11	8	9
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	11	17	17	11	17	16	13	17	14	11	16	12	10	16	11	9
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	16	14	17	17	11	17	12	10	17	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	19	19	18	18	16	17	17	14	16	15	12	15	11	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	14	13	9	15	11	12	13	10	10			
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	12	15	15	11	15	15	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	13	9	15	11	12	13	9	10	11	13	9
			Exposed	15	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	15	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6	
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	15	18	13	11	17	11	9	16	10	8	15	9	11			
			Exposed	19	19	19	19	19	19	19	19	17	19	18	15	19	16	14	19	15	12	19	14	11	19	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	21	20	20	18	19	19	15	18	17	13	16	14	11	14	13	10	13	11	9	
			Exposed	23	23	23	23	23	22	23	23	20	23	23	18	22	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

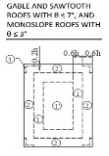
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

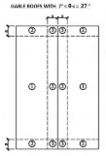
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

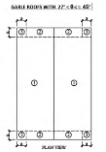
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

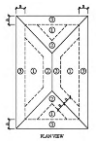












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

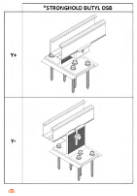
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	12	12
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	15	10	8
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	13
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	11	12	13	9	11	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	13	9	10	11	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	12	10	14	11	9	14	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	11	15	12	10	15	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	18	18	18	17	17	16	16	16	14	15	15	12	15	13	11	11
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	18	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12	13	10	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	12	13	13	11	13	13	9	13	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	9	10	11	13	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	13	16	13	11	16	11	9	15	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	16	14	17	15	12	17	14	11	17	12	9	17	10	12	15	8	11	13	11	9	11	10	12	10	9	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	18	18	18	15	17	17	13	16	14	11	14	13	10	13	11	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	11	9	11	11	10
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	16	14	11	14	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	13
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	10	11	11	13	9	11	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	13	11	10	11	12	10	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	14	11	14	12	10	13	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	12	10	14	10	8	14	9	11	14	12	10	12	11	9
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	16	15	15	14	14	14	12	14	13	11	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	16	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	10	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	12	9	10	11	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	9	10	11	12	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12	12	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	11	9	14	9	11	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	12	15	14	11	15	12	9	15	10	12	15	8	11	13	11	9	11	10	12	10	9	7
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	15	16	16	13	15	14	11	14	13	10	13	11	9
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	18	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

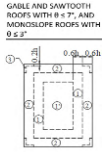
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

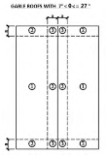
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

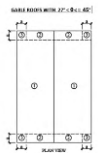
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

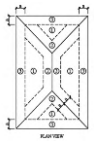












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

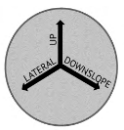
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

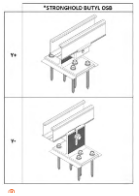
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	33	34	34	29	34	34	26	34	34	23	34	30	21	34	27	19	34	25	17	29	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	34	30	21	34	27	19	33	24	17	30	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	34	34	29	34	34	25	34	31	23	34	28	20	34	25	18	32	23	17	29	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	34	25	18	31	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	35	35	35	35	35	31	35	34	28	35	30	25	35	27	22	35	25	20	35	23	18	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	35	27	22	35	24	20	35	22	18	34	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	35	35	35	35	35	33	35	35	30	35	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	8
			Exposed	35	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	34	32	22	34	28	20	34	25	18	32	23	16	29	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	34	27	19	33	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	35	29	24	35	26	21	35	23	19	35	21	17	33	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	35	35	28	35	32	25	32	29	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	34	26	18	33	23	16	29	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	31	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	35	24	19	35	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
10	B	0-7	Interior	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	27	19	28	25	17	28	21	15	25	18	12	21	15	11	18	13	9	16	12	8	14	10	7
			Exposed	28	28	21	28	27	19	28	24	17	28	21	15	27	19	13	24	17	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	28	28	28	28	28	25	28	28	23	28	28	20	28	25	18	28	23	17	28	21	15	24	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	15	25	18	13	22	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	32	32	32	32	32	31	32	32	28	32	30	25	32	27	22	32	25	20	32	23	18	32	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	32	27	22	32	24	20	32	22	18	32	19	16	31	17	14	28	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	31	24	32	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9
			Exposed	34	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	28	28	22	28	28	20	28	25	18	28	23	16	28	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	28	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	28	27	19	28	24	17	28	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	32	29	24	32	26	21	32	23	19	32	21	17	32	19	15	29	17	14	27	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	32	18	15	29	16	13	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	34	34	28	34	32	25	32	29	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	28	26	18	28	23	16	28	21	14	26	19	13	24	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	28	22	16	27	19	14	24	17	13	22	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	33	24	19	33	21	17	33	19	15	30	17	14	27	15	13	24	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
20	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	15	20	18	12	20	15	11	18	13	9	16	12	8	14	10	7
			Exposed	20	20	20	20	20	19	20	20	17	20	20	15	20	19	13	20	17	12	20	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	17	13	21	15	11	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	15	21	18	13	21	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	23	18	25	19	16	25	16	13	24	14	11	21	12	10	18	11	9	16	9	8	14	8	7
			Exposed	25	25	22	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	24	19	23	20	16	20	17	14	17	15	12	15	13	10	13	12	9	11	9	8
			Exposed	28	28	27	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	20	20	14	20	18	13	20	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	21	17	12	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	25	25	24	25	25	21	25	23	19	25	21	17	25	19	15	25	17	14	25	15	13	22	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	25	18	15	25	16	13	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	22	28	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	26	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	20	20	18	20	20	16	20	20	14	20	19	13	20	17	12	20	15	11	19	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	20	17	12	20	15	10	19	13	9	17	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	21	21	16	21	19	14	21	17	13	21	16	11	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	26	24	19	26	21	17	26	19	15	26	17	14	26	15	13	24	14	11	22	13	10	19	11	9	14	8	6	12	7	6	10	6	5	9	5	7	6	5	4
			Exposed	26	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	23	29	26	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

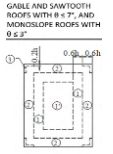
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

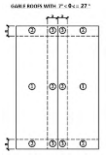
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

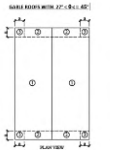
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

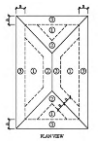












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

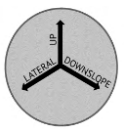
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

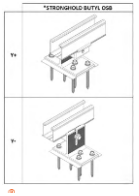
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	16	15	11	16	13	9	16	12	8	14	10	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	16	11	16	13	9	16	11	8	14	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	13	9	15	11	8	13	10	7	12	9	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16	21	16	13	21	14	11	21	12	10	18	11	9	16	9	8
			Exposed	21	21	21	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	22	20	16	20	17	14	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	16	16	14	16	16	13	16	16	11	16	15	10	16	13	9	16	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	11	16	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	17	14	21	15	13	21	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	5
			Exposed	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	19	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	23	23	18	23	21	16	21	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	6	8	5	5	6	6	4	5	5	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	6	7	5	5	6	6	5	5	5	4	7	5	5	6	5	4
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	6	5	7	5
40	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	11	15	13	9	15	12	8	14	10	7	13	9	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	9	15	11	8	14	10	7	12	9	6	10	8	6	9	7	5	8	6	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	9	15	11	8	13	10	7	12	9	6	10	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	13	10	15	11	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	16	13	17	14	11	17	12	10	17	11	9	16	9	8	14	8	6
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	12	10	17	10	9	16	9	7	14	8	6	12	7	6	10	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	18	17	14	17	15	12	15	13	10	13	12	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	9	14	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13	17	17	13	17	14	11	17	12	10	17	11	9	16	9	8
			Exposed	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	11	9	17	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	15	18	19	15	18	16	13	16	14	11	13	12	9	12	10	8
			Exposed	20	20	18	20	20	16	20	18	15	19	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	12	9	6	10	8	5	9	6	6	8	5	5	6	6	4	5	5	4	5	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	11	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	6	7	5	5	6	6	5	5	5	4	7	5	5	6	5	4
		20-27	Interior	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	22	15	13	22	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	23	25	25	21	25	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	21	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	6	5	7	5
50	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	8	13	10	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6	10	7	5	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	11	13	13	8	13	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	14	11	15	12	10	15	11	9	14	9	8	12	9	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	15	12	10	15	10	9	15	9	7	14	8	6	12	7	6	10	6	5	9	7	6
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16	16	16	14	16	15	12	15	13	10	13	12	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	8	13	10	7	13	9	6	11	8	5	10	7	5
			Exposed	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	12	8	13	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	10	7	12	9	6	10	8	6	9	7	5	8	6	7
			Exposed	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	13	10	13	13	9	13	10	7	12	9	6	10	8	6	9	7	5	8	6	6	7	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	13	15	13	11	15	11	9	14	9	8	14	8	7	13	7	6	11	6	5
			Exposed	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	14	8	7	12	7	6	11	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	15	16	16	13	15	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	18	18	18	18	18	16	18	18	15	18	17	13	17	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	14	14	12	14	14	10	14	13	9	14	12	8	14	11	8	14	10	7	12	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	14	11	16	13	10	16	11	9	15	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	16	15	13	16	14	11	16	12	10	16	11	9	16	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	17	18	18	15	17	17	14	17	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	19	19	15	19	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	5	5	6	5	7	5

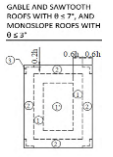
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

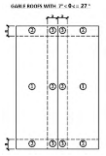
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

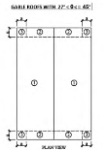
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

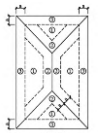












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #144S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

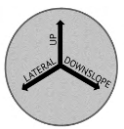
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

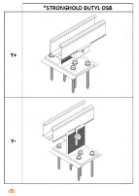
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6	10	7	5	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	7	8	6	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	9	13	9	8			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	9	13	9	7	13	8	6	12	7	6	10	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	14	14	12	13	13	10	13	12	9			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	11	8	11	10	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	6	11	8	5	9	7	7	8	6	6	7	5	5	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	7	11	9	6	10	8	6	9	7	5	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	12	8	7	12	7	6	11	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	8	7	12	7	6	11	6	5	9	5	7	8	7	6	11	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	6	7	6	5
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	12	12	12	12	12	10	12	12	9	12	12	8	12	11	8	12	10	7	12	9	6	10	8	5	9	6	7	8	5	5	6	6	4	7	5	5	6	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	9	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	7	11	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	7	5	5	6	6	5
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	13	10	14	11	9	14	9	7	13	8	6	12	7	6	10	6	5	9	5	7
			Exposed	14	14	13	14	14	10	14	11	9	14	10	8	14	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	9	6	5	8	6	4
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	16	16	15	16	16	14	15	15	13	14	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	17	17	15	17	17	13	17	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	7	5	5
70	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7		
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	7	5	9	7	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	11	9	8			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	9	12	9	7	12	8	6	10	7	6	9	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	13	13	10	12	12	9			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	13	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	5	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	6	9	8	5	9	7	7	8	6	6	7	5	5	6	7	5	6	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6	9	8	6	9	7	5	8	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	11	11	8	11	11	7	11	7	6	10	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	8	7	12	7	6	11	6	5	9	5	7	8	7	6	9	6	5
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	12	12	9	11	11	8			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	5	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	5	9	6	7	8	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	7	10	8	6	10	7	5	9	6	7	8	5	5	7	5	5
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	6	10	8	5	9	6	7	7	5	6	6	7	5	6	6	5	5	5	4	5	5	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	12	9	7	12	8	6	11	9	7	10	6	5	9	5	7
			Exposed	13	13	13	13	13	11	13	13	11	13	13	9	13	13	10	13	12	8	13	12	7	12	7	6	10	6	5	9	5	6	8	7	6	9	6	5	8	6	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	13	13	13	11	12	11	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
80	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	8	6	10	7	5	9	6	5	9	5	7	6	5	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11	11	10	11
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	11	9	11	10	8	10	9	7	9
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	9	10	9	8	10	8	7	10	7	6	9	6	5			
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	6	5	9	5	7	8	6	5	8	6	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	11	11	11	9	10	10	8	10	9	7	9	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6	6	5	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	9	6	9	8	6			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	7	9	8	6	9	7	5	8	6	6	7	5	5	6	7	5	5	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	7	11	9	6	10	8	6	9	7	5			
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	12	12	10	12
			Exposed	14	14	14	14	14	13	14	14	12	14	14	11	13	12	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17

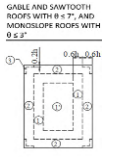
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

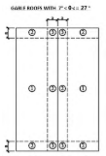
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

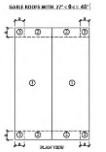
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

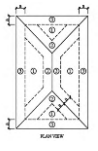












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

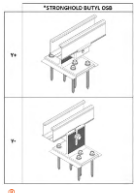
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7	7	7	7
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	6	9	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	10	10	10	10	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7	7	6	6	7	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	9	8	9	8	7	9	9	6	9	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5	9	5	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	9	8	6	
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	8	10	9	7	9	8	6	8	7	5	7	6	7	6	5	6			
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	7	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	6	7	7	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	5	6	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	5	8	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	10	7	6	9	6	5	9	5	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	8	6	10	7	6	10	6	5	9	5	6	8	7	6	7	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	11	11	11	11	9	10	10	8	10	9	7	8	8	6	7	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	12	12	10	12	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
100	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	6	6
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	5	6	7	5	5	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	7	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	6	7	6	7	7	5	7	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	5	5	5	4	7	5	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	6	9	6	5	8	5	7	8	5	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	6	9	6	5	9	5	6	8	7	6	7	6	5	8	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	9	10	10	8	9	9	7	8	8	6	7	7	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	11	11	9	11	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5

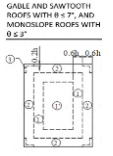
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

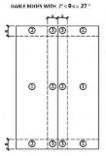
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

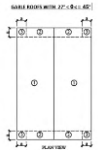
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

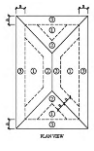












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

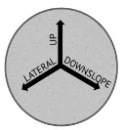
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

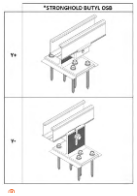
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	57	57	55	57	57	49	57	57	44	57	57	39	57	51	35	57	46	32	57	42	29	49	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	57	51	35	57	45	31	56	40	28	50	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	57	57	48	57	57	43	57	53	38	57	47	34	57	43	31	54	39	28	49	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	57	42	31	52	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	58	58	58	58	58	52	58	57	46	58	51	42	58	46	38	58	42	34	58	38	31	56	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	58	46	38	58	41	33	58	36	30	57	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	59	59	59	59	59	59	59	59	56	59	59	50	59	58	45	59	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	59	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	57	54	37	57	48	33	57	43	30	54	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	48	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	57	45	33	56	40	29	50	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	58	49	40	58	43	35	58	39	32	58	35	28	55	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	55	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	59	59	48	59	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	57	44	31	55	39	27	49	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	52	37	27	46	33	24	41	29	22	37	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	58	40	33	58	36	29	56	32	26	50	29	24	45	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	45	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	56	50	39	50	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
10	B	0-7	Interior	46	46	46	46	46	46	46	46	44	46	46	39	46	46	35	46	46	32	46	42	29	46	35	25	42	30	21	36	26	18	31	23	16	27	20	14	24	17	12
			Exposed	46	46	35	46	45	31	46	40	28	46	36	25	46	33	23	41	30	21	38	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	47	47	47	47	47	43	47	47	38	47	47	34	47	43	31	47	39	28	47	35	26	41	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	47	42	31	47	38	28	47	34	25	42	30	22	38	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	53	53	53	53	53	52	53	53	46	53	51	42	53	46	38	53	42	34	53	38	31	53	32	26	48	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	53	46	38	53	41	33	53	36	30	53	33	27	52	30	24	47	27	22	43	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	57	57	57	57	57	57	57	57	56	57	57	50	57	57	45	57	52	41	53	48	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	57	57	45	57	51	40	51	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	46	46	37	46	46	33	46	43	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	46	34	24	43	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	47	45	33	47	40	29	47	36	26	44	32	23	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	40	29	21	36	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	53	49	40	53	43	35	53	39	32	53	35	28	53	31	26	50	28	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	53	31	26	48	28	23	43	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	57	57	48	57	54	42	54	48	38	49	43	34	44	39	31	40	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	46	44	31	46	39	27	46	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	40	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	47	37	27	47	33	24	41	29	22	37	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	58	40	33	58	36	29	56	32	26	50	29	24	45	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	45	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	56	50	39	50	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
20	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	25	34	30	21	34	26	18	31	23	16	27	20	14	24	17	12
			Exposed	34	34	34	34	34	31	34	34	28	34	34	25	34	33	23	34	30	21	34	27	19	32	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	26	35	30	22	35	25	19	30	22	16	26	19	14	23	17	12	20	15	11
			Exposed	35	35	31	35	35	28	35	34	25	35	30	22	35	27	20	34	25	18	31	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	38	31	42	32	26	42	27	22	41	24	19	35	20	17	31	18	15	28	16	13
			Exposed	42	42	38	42	41	33	42	36	30	42	33	27	42	30	24	42	27	22	42	25	20	36	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	47	47	45	47	47	40	47	46	36	46	41	32	42	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	34	34	34	34	34	33	34	34	30	34	34	27	34	34	24	34	31	22	34	29	20	33	24	17	28	21	14	25	18	12	21	15	11	19	14	10	17	12	8
			Exposed	34	34	24	34	31	21	34	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	35	35	33	35	35	29	35	35	26	35	32	23	35	29	21	35	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	35	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	42	42	40	42	42	35	42	39	32	42	35	28	42	31	26	42	28	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	42	31	26	42	28	23	42	25	20	39	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	45	40	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16
			Exposed	44	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	34	34	31	34	34	27	34	34	25	34	32	22	34	29	20	34	26	18	33	24	17	28	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	34	28	20	34	25	18	31	23	16	28	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	35	35	27	35	33	24	35	29	22	35	27	19	33	24	18	30	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	33	24	18	29	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	44	40	33	44	36	29	44	32	26	44	29	24	44	26	21	41	24	19	37	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	44	26	21	40	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	48	48	39	48	45	35	45	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

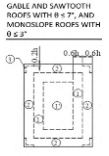
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

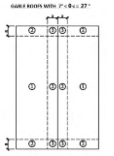
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

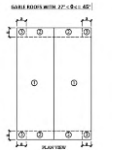
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

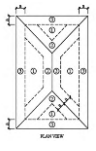












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

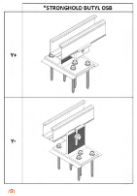
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	26	18	27	23	16	27	20	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	27	19	27	23	16	27	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	25	19	27	22	16	26	19	14	23	17	12	20	15	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	25	18	27	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	31	35	32	26	35	27	22	35	24	19	35	20	17	31	18	15	28	16	13			
			Exposed	35	35	35	35	35	33	35	35	30	35	33	27	35	30	24	35	27	22	35	25	20	35	21	17	31	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	38	34	27	33	30	23	29	26	20	25	23	18	22	20	16			
			Exposed	39	39	39	39	39	39	39	39	36	39	39	32	39	37	29	38	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	12	21	15	11	19	14	10	17	12	8			
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	24	18	27	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	27	27	21	27	26	19	27	23	17	27	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	35	35	35	35	35	35	35	35	32	35	35	28	35	31	26	35	28	23	35	26	21	35	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	35	31	26	35	28	23	35	25	20	35	22	18	35	20	17	32	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	38	39	39	34	39	39	31	38	36	28	36	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	39	39	31	39	35	27	35	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	36	36	33	36	36	29	36	32	26	36	29	24	36	26	21	36	24	19	36	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	36	26	21	36	23	19	36	21	17	32	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	41	41	39	41	41	35	41	40	31	40	36	28	36	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	23	16	25	20	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	16	25	19	14	23	17	12	20	15	10	18	13	9	16	11	12
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	25	19	26	22	16	26	19	14	23	17	12	20	15	11
			Exposed	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	25	18	26	23	17	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	24	19	29	20	17	29	18	15	28	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	27	22	29	25	20	29	21	17	29	18	15	26	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	33	33	27	31	30	23	29	26	20	25	23	18	22	20	16
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	31	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	17	25	21	15	25	18	12	21	15	11	19	14	10	17	12	8			
			Exposed	25	25	24	25	25	21	25	25	19	25	25	17	25	22	16	25	20	14	25	19	13	22	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	24	18	26	20	15	24	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	26	26	21	26	26	19	26	23	17	26	21	15	26	19	14	24	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	28	29	29	26	29	28	23	29	26	21	29	22	18	29	19	15	28	16	13	24	14	12	21	12	10	19	11	9
			Exposed	29	29	26	29	28	23	29	25	20	29	22	18	29	20	17	29	18	15	29	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11			
			Exposed	34	34	31	34	34	27	34	31	25	31	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	18	27	24	17	27	20	14	24	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	22	27	27	19	27	24	18	27	22	16	27	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	27	24	18	27	21	16	26	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	31	31	31	26	31	29	24	31	26	21	31	24	19	31	22	18	31	18	15	27	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	31	26	21	31	23	19	31	21	17	31	19	15	29	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	36	36	36	36	36	35	36	36	31	35	35	28	34	33	26	33	30	23	30	27	21	26	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	36	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
50	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	20	14	22	17	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	16	22	22	19	22	22	16	22	19	14	22	17	12	20	15	11
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	19	14	22	17	12	20	15	11
			Exposed	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	10	11			
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	24	19	26	20	17	25	18	15	24	16	13
			Exposed	26	26	26	26	26	24	26	26	26	26	26	24	26	26	22	26	26	22	26	25	20	26	21	17	26	18	15	23	13	11	20	12	10	18	10	9			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	27	28	28	23	26	26	20	25	23	18	22	20	16
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	29	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	14	22	18	12	21	15	11	19	14	10	17	12	8
			Exposed	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	20	14	22	19	13	22	16	11	18	13	8	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	20	15	22	17	13	21	15	11	18	13	10	16	11	8	14	10	11
			Exposed	22	22	22	22	22	19	22	22	17	22	22	15	22	19	14	22	17	13	21	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	24	16	13	23	14	12	21	12	10	19	11	9
			Exposed	26	26	26	26	26	23	26	25	20	26	22	18	26	20	17	26	18	15	26	17	14	25	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	28	29	29	26	27	27	22	25	24	19	23	20	16	20	18	14	17	16	12	15	14	11
			Exposed	30	30	30	30	30	27	30	30	25	30	28	22	29	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	23	17	23	20	14	23	17	12	20	15	10	18	13	9	16	11	12	14	10	11			
			Exposed	23	23	20	23	23	18	23	23	16	23	20	14	23	19	13	23	17	12	21	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	24	24	24	24	24	24	24	24	22	24	24	19	24	24	18	24	22	16	24	20	15	23	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	24	24	18	24	21	16	24	19	14	24	17	13	21	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	27	24	19	27	22	18	27	18	15	26	16	13	23	13	11	20	12	10	18	10	8	16	9	11
			Exposed	27	26	21	27	23	19	27	21	17	27	19	15	27	17	14	26	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	32	32	32	32	32	32	32	32	31	31	31	28	30	30	26	29	29	23	28	27	21	26	23	18	22	20	16	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	32	32	26	32	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

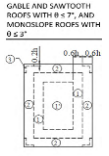
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

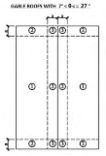
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

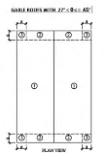
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

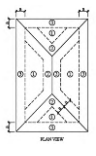












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

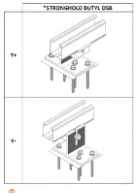
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	10	18	13	9	16	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	17	12	18	15	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	10	11
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	20	17	22	18	15	21	16	13
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	21	17	23	18	15	23	15	13	23	13	11	20	12	10	18	10	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	23	24	24	20	23	23	18	22	20	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	26	21	25	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	18	12	18	15	11	18	14	10	17	12	8
			Exposed	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	13	18	16	11	18	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	17	13	18	15	11	18	13	10	16	11	8	14	10	11
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	13	18	16	11	18	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	22	16	13	21	14	12	20	12	10	19	11	9
			Exposed	23	23	23	23	23	23	23	23	20	23	22	18	23	20	17	23	18	15	23	17	14	23	14	12	21	12	10	18	10	9	16	9	11	14	8	10	12	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	17	16	12	15	14	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	25	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	20	20	14	20	17	12	20	15	10	18	13	9	16	11	12	14	10	11
			Exposed	20	20	20	20	20	20	20	20	16	20	20	14	20	19	13	20	17	12	20	15	11	18	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	19	20	20	18	20	20	16	20	20	15	20	17	12	20	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	20	20	18	20	20	16	20	19	14	20	17	13	20	16	11	19	14	10	18	13	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	22	18	24	18	15	23	16	13	22	13	11	20	12	10	18	10	8	16	9	11
			Exposed	24	24	21	24	23	19	24	21	17	24	19	15	24	17	14	24	15	13	24	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	29	29	29	29	29	29	29	29	29	28	28	28	27	27	26	27	27	23	26	26	21	24	23	18	22	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	29	29	26	29	29	23	29	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
70	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	16	12	16	15	10	16	13	9	16	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	11
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	15	19	16	13
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	15	20	15	13	20	13	11	20	12	10	18	10	9
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	20	21	21	18	20	20	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18	21	19	15	19	17	13	16	15	12	15	13	10
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	15	11	16	14	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	13	16	16	11	16	13	9	16	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11	16	13	10	16	11	8	14	10	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	13	16	16	11	16	13	10	15	11	8	13	10	11	12	8	9	10	11	8	9	10	7
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	19	15	19	16	13	19	14	12	18	12	10	17	11	9
			Exposed	20	20	20	20	20	20	20	20	20	18	20	20	17	20	18	15	20	17	14	20	14	12	20	12	10	18	10	9	16	9	11	14	8	10	12	11	9	11	7
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	20	24	24	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	18	23	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	15	10	17	14	9	16	11	12	14	10	11
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	15	11	17	13	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	16	18	18	15	18	17	12	18	14	11	17	12	9	15	11	12	13	9	11	12	8	9
			Exposed	18	18	18	18	18	16	18	18	14	18	17	13	18	16	11	18	16	10	18	16	10	15	11	12	13	9	10	11	12	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	18	15	21	16	13	20	13	11	19	12	10	18	10	8	16	9	11
			Exposed	22	22	21	22	22	19	22	21	17	22	19	15	22	17	14	22	15	13	22	14	12	20	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	23	24	24	21	22	22	18	21	20	15	19	17	13	16	15	12	14	13	10	13	11	9
			Exposed	26	26	26	26	26	23	26	26	20	26	23	18	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
80	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	19	19	18
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	18	21	19	15	19	17	13	16	15
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	13	9	14	11	8	14	10	11	12	9	9	11	12	8
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	16
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	21	21	17	20	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	10	15	13	9	15	11	12	14	10	11
			Exposed	15	15	15	15	15	15	15	15	15	14	15	13	15	15	12	15	15	11	15	15	9	15	11	12	13	10	10	11	8	9	10	11	8	9	10	7	11	8	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	11	15	12	9	15	11	12	13	9	11	12	8	9
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	15	10	15	15	10	15	11	12	13	10	10	11	8	9	10	11	8	8	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	18	13	11	18	12	10	17	10	8	16	9	11
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	17	14	19	15	13	19	14	12	19	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	7
		27-45	Interior	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	22	22	21	21	21	18	21	19	16	19	17	13	16	16	12	15	12	9	11	10	8
			Exposed	24	24	24	24	24	24	23	24	24	20	23	23	18	23	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

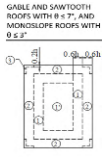
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

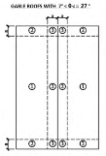
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

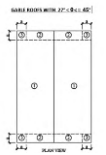
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

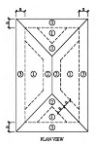












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

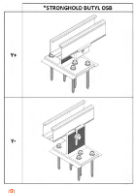
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12		
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	11
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	17	17	16
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	19	19	15	18	17	13	16	15	12	15	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	12	12	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	11	12	9	9	11	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	11	8	12	12	10	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	8	12	10	11	12	8	9	10	11	8	9	10	~~7~~
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	13	15	14	12	15	12	10	15	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	12	15	12	10	15	10	9	15	9	11	14	8	10	12	11	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	17	17	16	16	16	14	16	16	12	15	14	11	
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	18	14	17	15	12	15	13	10	13	12	9	11	10	12	10	9	11
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	13	9	14	11	12	14	10	11
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	9	14	11	12	13	10	10	11	8	9	10	11	~~8~~	9	10	~~7~~
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	12	9	14	11	12	13	9	11	12	8	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	14	10	14	13	10	14	11	12	13	9	10	11	12	9	10	11	~~8~~	8	9	~~7~~	11	8	~~6~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	16	12	10	16	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	15	13	17	14	12	17	12	10	17	10	8	15	9	11	13	12	10	11	10	8	10	9	~~7~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	21	21	20	20	20	19	19	18	18	18	15	17	17	13	16	15	12	14	13	10	13	11	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	21	21	17	21	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	11	10	11
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	12	10	14	10	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	17	17	13	16	15	12	15	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	11	11	9	9	11	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	10	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	11	11	8	9	10	11	8	9	10	~~7~~
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	10	14	10	9	14	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	12	10	14	10	9	14	9	11	14	8	10	12	11	~~9~~
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	17	16	16	16	15	15	14	15	15	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	14	17	15	12	15	13	10	13	12	9	11	10	12
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	10	11	8	9	10	11	~~8~~	9	10	~~7~~
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	9	12	11	12	12	9	11	12	9	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	10	12	11	12	12	9	10	11	12	9	10	11	~~8~~	8	9	~~7~~	11	8	~~6~~
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	10	15	10	8	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	12	10	15	10	8	15	9	11	13	12	10	11	10	8	10	9	~~7~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	18	18	18	17	17	15	16	16	13	15	15	12	14	13	10	13	11	9			
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	20	20	17	19	19	15	19	18	14	17	15	12	14	13	10	12	11	9	11	10	12	9	8	10	8	11	9

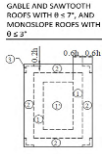
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

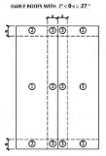
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

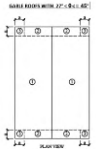
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

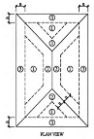












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

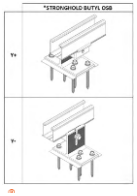
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	29	29	27	29	29	24	29	29	22	29	28	19	29	25	17	29	23	16	29	21	14	24	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	29	25	17	29	22	15	28	20	14	25	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	29	29	24	29	29	21	29	26	19	29	23	17	29	21	15	27	19	14	24	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	29	29	29	29	29	26	29	28	23	29	25	21	29	23	19	29	21	17	29	19	15	28	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	29	23	19	29	20	16	29	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	29	27	18	29	24	16	29	21	15	26	19	13	24	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	24	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	29	22	16	27	20	14	24	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	29	24	20	29	21	17	29	19	16	29	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	9	7	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	29	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	5	6	4	5	5	4	7	5	5
		7-20	Interior	26	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	29	20	16	29	18	14	28	16	13	25	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	9	5	4	6	5	4	5	4	3
		27-45	Interior	28	25	19	25	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	6	4	6	5	4	5	6	4
10	B	0-7	Interior	23	23	23	23	23	23	23	23	22	23	23	19	23	23	17	23	23	16	23	21	14	23	17	12	21	15	10	18	13	9	15	11	8	13	10	7	12	9	6
			Exposed	23	23	17	23	22	15	23	20	14	23	18	12	22	16	11	20	15	10	19	13	9	16	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	17	13	20	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	27	27	27	27	27	26	27	27	23	27	25	21	27	23	19	27	21	17	27	19	15	27	16	13	23	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	27	23	19	27	20	16	27	18	15	27	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	29	22	29	26	20	26	24	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	29	28	22	28	25	20	25	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	6	8	6	6
			Exposed	23	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	23	22	16	23	20	14	23	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	20	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	27	24	20	27	21	17	27	19	16	27	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	27	15	13	24	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	23	22	15	23	19	13	23	17	12	22	16	11	20	14	10	18	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	20	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	23	18	13	23	16	12	20	14	11	18	13	10	16	12	9	15	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	27	20	16	27	18	14	27	16	13	24	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	9	5	4	6	5	4	5	4	3
		27-45	Interior	25	22	17	25	21	16	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	6	4	6	5	4	5	6	4
20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	10	17	13	9	15	11	8	13	10	7	12	9	6
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	16	11	17	15	10	17	13	9	16	11	8	13	9	6	10	7	5	9	6	7	8	5	6	7	5	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	5
			Exposed	17	17	15	17	17	14	17	17	12	17	15	11	17	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	15	21	16	13	21	13	11	20	12	9	17	10	8	15	9	7	14	8	6
			Exposed	21	21	19	21	20	16	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	22	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	23	23	22	23	23	20	23	23	18	23	20	16	21	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	17	17	12	17	15	10	17	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	17	17	16	17	17	14	17	17	13	17	16	12	17	14	10	17	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	17	14	10	17	13	9	16	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	21	21	20	21	21	17	21	19	16	21	17	14	21	15	13	21	14	11	21	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	5	9	5	7
			Exposed	21	15	13	21	14	11	21	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	23	23	23	23	23	21	23	23	19	23	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	22	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	17	17	15	17	17	13	17	17	12	17	16	11	17	14	10	17	13	9	16	12	8	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	17	14	10	17	12	9	15	11	8	14	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	17	17	13	17	16	12	17	14	11	17	13	10	16	12	9	16	12	9	14	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	16	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	22	20	16	22	18	14	22	16	13	22	14	12	22	13	10	20	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	22	13	10	20	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	9	5	4	6	5	4	5	4	3
		27-45	Interior	24	24	19	24	22	17	22	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	4	6	6	4	6	5	4	5	6	4

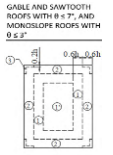
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

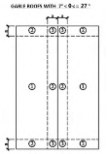
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

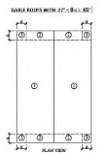
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

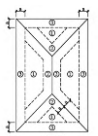












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

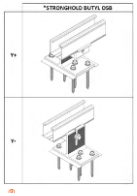
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																					
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	9	14	11	8	13	9	7	11	8	6	10	7	5
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	13	11	17	12	9	17	10	8	15	9	7	14	8	6
			Exposed	17	17	17	17	17	16	17	17	15	17	16	13	17	15	12	17	13	11	17	12	10	17	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	13	16	15	11	14	13	10	12	11	9	11	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	14	19	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	9	6	10	7	5	9	7	7	8	6	6
			Exposed	13	13	12	13	13	10	13	13	9	13	12	8	13	11	8	13	10	7	13	9	6	11	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	14	14	10	14	13	9	14	11	8	14	10	7	13	9	7	12	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13	17	14	11	17	13	10	17	11	9	16	9	7	14	8	6	12	9	6	10	6	5	9	5	7
			Exposed	17	15	13	17	14	11	17	12	10	17	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	19	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5
			Exposed	20	19	15	19	17	13	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	7	5	5	6	5	5
	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	12	8	13	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	13	13	10	13	12	9	13	11	8	13	10	7	13	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	5	4	5	6	4	7	5	5	7	5	5
		7-20	Interior	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	14	12	9	14	10	8	13	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	18	18	16	18	18	14	18	16	13	18	14	12	18	13	10	18	12	9	18	11	9	15	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	18	13	10	18	11	9	18	10	8	16	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	8	5	4	5	4	3
		27-45	Interior	21	21	19	21	21	17	21	20	15	20	18	14	18	16	13	16	15	11	15	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	18	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	7	6	5	6	5	4
40	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	12	9	13	11	8	13	9	7	11	8	6	9	7	5	9	6	7	7	5	6	6	5	5
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	9	15	10	8	14	9	7	14	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	13	15	15	11	14	13	10	12	11	9	11	10	8
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	8	12	10	7	12	9	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5
			Exposed	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	13	9	13	12	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	9	15	10	8	14	9	7	14	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	13	15	15	11	14	13	10	12	11	9	11	10	8
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	8	12	10	7	12	9	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	11	8	13	9	7	11	8	6	10	7	5
			Exposed	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	13	9	13	11	8	13	9	7	11	8	6	10	7	5	9	6	7	8	5	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	12	9	15	10	8	14	9	7	14	8	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	11	15	12	10	15	10	8	15	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	13	15	15	11	14	13	10	12	11	9	11	10	8
			Exposed	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
50	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	9	11	11	8	11	9	7	11	8	6	10	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	8	11	11	7	11	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	10	13	10	8	13	9	7	13	7	6	11	6	5	10	6	5	9	5	6
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	11	13	13	10	12	11	9	11	10	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	10	7	5	9	7	7
			Exposed	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	10	7	11	9	6	11	8	5	9	6	6	7	5	5	6	6	4	5	6	4	5	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	10	11	10	7	11	8	6	10	7	5	9	6	5	8	5	6	7	5	5
			Exposed	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	11	8	6	10	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	9	12	9	7	12	8	6	11	7	6	10	6	5	9	5	7
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	13	11	13	12	9	11	10	8	10	9	7	8	7	6	7	6	5
			Exposed	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	5	5
			Exposed	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	6	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4
			Exposed	12	12	9	12	10	8	12	9	7	12	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	13	10	14	12	9	14	11	9	13	9	7	13	8	6	11	6	5	10	6	5	9	5	6	8	7	5
			Exposed	14	13	10	14	11	9	14	10	8	14	9	7	14	8	7	13	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	8	5	4	5	4	3
		27-45	Interior	16	16	16	16	16	16	16	16	15	16	16	14	15	15	13	14	14	11	14	13	10	13	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	7
			Exposed	16	16	13	16	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	5	6	5	6	5	4	5	4	3

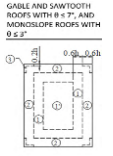
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

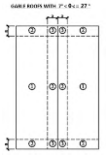
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

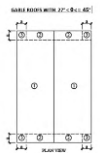
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

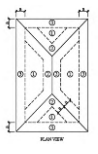












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

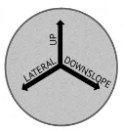
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

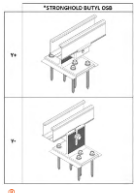
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	7	8	5	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	8	6	9	7	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	7	7	5	6	6	5	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	7	6	11	6	5	10	6	5	9	5	6			
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	9	11	10	8			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5			
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	7	5	9	7	7	8	6	6			
			Exposed	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	5	9	6	7	8	6	6	7	5	5	6	6	4	5	6	4						
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	9	6	5	8	5	6	7	5	5			
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	8	5	9	6	5	7	5	6	6	5	5	6	6	5	5	5	4	7	5	5			
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	9	7	11	8	6	10	6	5	9	5	7						
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	5	4			
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	11	11	9	11	10	8	10	9	7	8	8	6	7	7	5				
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	5	6	6	5	6	5	4	6	5	4			
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	9	6	7	8	5	6	7	5	5			
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	6	10	8	5	9	6	7	7	5	6	6	5	5	6	6	4	5	5	4	6	4	3			
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	8	6	7	7	5	6	6	7	5	6	6	4			
			Exposed	10	10	9	10	10	8	10	9	7	10	8	6	10	8	5	10	7	5	9	6	7	7	5	6	6	7	5	6	4	5	5	4	6	4	3	5	4	3				
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	9	12	9	7	11	8	6	11	6	5	10	6	5	9	5	6	8	7	5			
			Exposed	12	12	10	12	11	9	12	10	8	12	9	7	12	8	7	12	7	6	12	7	6	10	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3			
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	11	13	13	10	12	11	9	11	10	7	9	8	6	8	7	6	7	6	5	6	5	4			
			Exposed	14	14	13	14	14	11	14	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	6	5	4	6	5	4			
70	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	5	6			
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	5			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	7	5	5	6	5	5			
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6						
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	7	6	10	6	5	9	6	5						
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	10	10	10	9	10	8			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	5			
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	6	7	8	6	6	7	5	5	6	6	4	5	6	4						
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	5	8	5	6	7	5	5			
			Exposed	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	6	8	8	5	8	6	5	7	5	6	6	5	5	6	6	5	5	4	7	5	3			
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	9	8	6			
			Exposed	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	8	7	10	7	6	10	6	5	9	5	6	8	7	6	7	6	5	6	4			
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	10	10	10	9	9	7	8	8	6	8	7	5			
			Exposed	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	4	5	4	3			
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	5	6	7	5	5			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	6	8	7	5	8	6	5	7	5	5	6	5	5			
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	5	8	5	6	7	5	5			
			Exposed	9	9	9	9	9	8	9	9	7	9	8	6	9	8	5	9	7	5	9	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3			
		20-27	Interior	11	11	11	11	11	10	11	11	9	11	11	9	11	11	9	11	11	9	11	11	9	11	11	9	11	10	8	10	9	7	10	8	6	9	6	5	9	5	6			
			Exposed	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	6	11	7	6	10	6	5	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3			
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	12	12	10	11	11	9	10	10	7	9	8	6	8	7	6	7	6	5	6	5	4			
			Exposed	13	13	13	13	13	11	13	13	10	13	11	9	12	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	6	5	4	6	5	4			
80	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5			
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5			
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6			
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	8			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	9	10	9	7	9	8	6	8	7	6			
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	7	5	6	6	4	5	6	4						
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	5	6	5	5	7	5	5			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	6	6	5	5	6	4	6	5	4			
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7			
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	6	8	7	6	7	6	5	7	6	4			
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	9	9	9	9	9	8	9	9	7	9	8	6			
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	10	10	8	10	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5	6	5	4			
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	5			
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	5	6	4	5	5	4	7	5	3						
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	6	4	5	6	4				
			Exposed	8	8	8	8	8	8	8	8	7	8	8	6	8	8	5	8	7	5	8	6	7	7	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3			
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	6	5	9	6	5	8	5	6	8	7	5			
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	6	9	7	6	9	6	5	8	5	6	7	6	5	6	6	5	6	5	4	5	4	3			
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	10	8	6	9	6	5	9	6	4			
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	11	10	8	11	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	6	5	4	6	5	4			

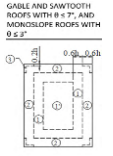
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

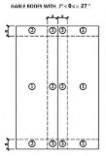
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

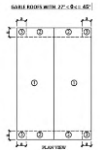
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

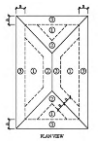












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

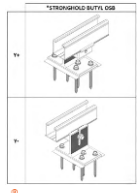
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	6	5	8	5	6
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	8	9	8	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	7	9	8	6	8	7	6	7	6	5
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	6	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	5	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	5	6	6	5	5	6	6	5	5	5	4	7	5	5
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	6	7	6	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	7	6	8	6	5	8	5	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	8	8	6	7	7	5
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	5	6	6	7	5	5	6	4	5	5	4	7	5	5	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	7	5	6	6	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	7	5	6	6	6	7	5	5	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	8	6	5	8	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	7	8	8	7	8	7	6	8	6	5	8	5	6	7	6	5	7	6	5	6	5	4
		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5	6	5	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	10	10	8	10	9	7	10	9	7	8	7	6	7	6	5	6	5	6	7	6	5	7	6	5	6	5	4
100	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	6	5	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	6	5	7	6	5	7	5	6
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	8	6	8	7	6	7	6	5
	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7	5	5	6	5	5	5	5	6	4	5	6	4
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	6	5	5	5	4	7	5	5
		20-27	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	5	7	6	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	5	6	7	6	5	6	6	5	6	5	4
		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	7	6	7	6	5	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	8	7	6	7	6	5	6	6	7	5	5	6	5	7	5
	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	7	5	5
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	7	6	5	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	5	6	6	7	6	5	6	6	7	5	5	6	4	5	5	4	6	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	5	7	6	5	7	6	5	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	7	8	8	7	8	7	6	8	6	5	8	5	6	7	6	5	6	6	5	6	5	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	8	8	6	7	7	6	7	6	5	6	5	7	6	5	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	9	7	9	9	7	8	7	6	7	6	5	6	5	6	5	6	4	5	4	3	5	4	3

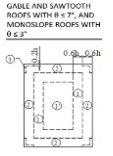
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

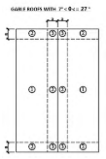
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

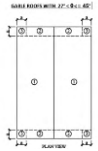
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

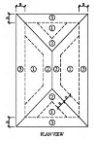












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

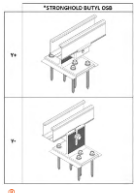
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	54	56	56	48	56	56	43	56	55	38	56	50	35	56	45	31	56	41	29	48	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	56	50	35	56	44	31	55	39	27	49	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	56	56	47	56	56	42	56	51	37	56	46	34	56	42	30	53	38	28	48	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	56	41	30	51	37	27	46	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	57	57	57	57	57	51	57	56	45	57	50	41	57	45	37	57	41	33	57	37	31	55	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	57	45	37	57	40	33	57	36	29	56	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	54	57	57	49	57	56	44	57	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15	20	15	10
			Exposed	57	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	56	53	37	56	47	32	56	42	29	52	37	26	47	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	47	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	56	44	32	54	39	28	48	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	57	48	39	57	42	35	57	38	31	57	34	28	54	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	53	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	57	57	47	57	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	56	43	30	54	39	27	48	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	50	36	27	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	11	9	11	10	8	10	9	7	
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
10	B	0-7	Interior	45	45	45	45	45	45	45	45	43	45	45	38	45	45	35	45	45	31	45	41	29	45	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	45	45	35	45	44	31	45	39	27	45	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	45	45	45	45	45	42	45	45	37	45	45	34	45	42	30	45	38	28	45	34	25	40	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	45	41	30	45	37	27	45	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	52	52	52	52	52	51	52	52	45	52	50	41	52	45	37	52	41	33	52	37	31	52	31	26	46	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	52	45	37	52	40	33	52	36	29	52	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	56	56	56	56	56	56	56	56	54	56	56	49	56	56	44	56	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	56	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	45	45	37	45	45	32	45	42	29	45	37	26	45	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	45	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	45	44	32	45	39	28	45	35	26	43	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	52	48	39	52	42	35	52	38	31	52	34	28	52	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	52	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	56	56	47	56	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	45	43	30	45	39	27	45	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	45	36	27	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	44	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	11	9	11	10	8	10	9	7	
		27-45	Interior	55	49	39	49	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
20	B	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	29	33	33	24	33	29	21	33	25	18	31	22	15	27	19	14	24	17	12
			Exposed	33	33	33	33	33	31	33	33	27	33	33	25	33	32	22	33	29	20	33	26	19	31	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	29	21	34	25	18	29	21	16	26	19	14	22	16	12	20	14	11
			Exposed	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	33	41	37	31	41	31	26	41	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	41	41	37	41	40	33	41	36	29	41	32	26	41	29	24	41	26	22	41	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	46	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	46	46	44	46	46	39	46	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	33	33	33	33	33	32	33	33	29	33	33	26	33	33	24	33	31	21	33	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	33	33	24	33	30	21	33	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	34	34	32	34	34	28	34	34	26	34	31	23	34	28	21	34	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	34	28	21	34	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	41	41	39	41	41	35	41	38	31	41	34	28	41	31	25	41	28	23	41	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	41	31	25	41	27	22	41	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	46	46	46	46	46	46	46	46	37	46	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	33	33	30	33	33	24	33	31	22	33	28	20	33	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10			
			Exposed	33	28	20	33	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	34	34	27	34	34	29	21	34	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9		
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	43	39	32	43	35	29	43	31	26	43	28	23	43	25	21	40	23	19	37	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	43	25	21	39	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	47	47	39	47	44	34	44	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

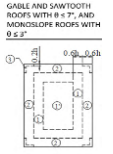
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

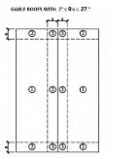
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

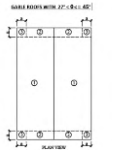
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

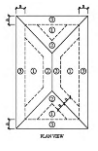












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

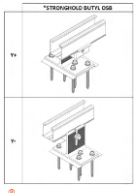
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	21	27	25	18	27	22	15	27	19	14	24	17	12
			Exposed	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	26	19	27	22	16	26	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18	27	21	16	26	19	14	22	16	12	20	14	11
			Exposed	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	18	27	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	31	34	31	26	34	27	22	34	23	19	34	20	16	30	18	14	27	16	13
			Exposed	34	34	34	34	34	33	34	34	29	34	32	26	34	29	24	34	26	22	34	24	20	34	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	38	38	38	38	38	38	38	38	35	38	38	32	38	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	21	27	27	20	27	24	17	27	20	14	24	17	12	21	15	11	18	13	9	16	12	13
			Exposed	27	27	24	27	27	21	27	27	19	27	24	17	27	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	27	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	27	27	21	27	25	18	27	22	17	27	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	31	25	34	28	23	34	25	21	34	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	34	31	25	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	37	38	38	33	38	38	30	38	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	38	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	25	18	27	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	27	27	20	27	25	17	27	22	16	27	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	36	36	32	36	35	29	36	31	26	36	28	23	36	25	21	36	23	19	36	21	17	31	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	36	25	21	36	23	19	35	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	40	40	39	40	40	34	40	39	31	39	35	28	36	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	36	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
40	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	18	25	22	15	25	19	14	24	17	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	22	25	25	20	25	25	20	25	25	19	25	22	16	25	19	13	23	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	21	16	25	19	14	22	16	12	20	14	11
			Exposed	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	24	18	25	22	16	25	19	14	22	16	12	19	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	29	23	19	29	20	16	28	18	14	27	16	13
			Exposed	29	29	29	29	29	29	29	29	29	29	26	29	29	24	29	26	22	29	24	20	29	20	17	29	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	32	32	26	30	29	23	28	25	20	25	22	17	22	20	15
			Exposed	33	33	33	33	33	33	33	33	32	33	33	29	33	33	26	33	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	20	25	24	17	25	20	14	24	17	12	21	15	11	18	13	9	16	12	13			
			Exposed	25	25	24	25	25	21	25	25	19	25	24	17	25	22	15	25	20	14	25	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	20	15	23	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	25	25	21	25	25	18	25	22	17	25	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	28	24	29	29	25	29	28	23	29	25	21	29	21	18	28	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	29	29	25	29	27	22	29	24	20	29	22	18	29	20	16	29	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	30	33	33	30	33	33	28	32	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	33	33	30	33	33	27	33	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	25	18	26	23	16	26	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	26	26	20	26	25	17	26	22	16	26	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	27	27	27	27	27	24	27	27	21	27	26	19	27	23	17	27	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	27	23	17	27	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	31	31	31	31	31	29	31	31	26	31	28	23	31	28	23	31	23	19	31	21	17	30	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	31	25	21	31	23	19	31	20	17	31	18	15	28	16	14	26	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	35	35	35	35	35	34	35	35	31	34	34	28	33	32	25	32	29	23	30	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	35	32	25	32	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
50	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	14	21	17	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	19	21	21	16	21	19	13	21	16	12	20	14	10	17	13	9	15	11	12
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	16	21	19	14	21	16	12	20	14	11
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	19	21	21	16	21	21	18	21	21	16	21	19	14	21	16	12	19	14	10
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	19	25	20	16	24	18	14	24	16	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	22	25	24	20	25	25	20	17	25	17	14	25	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	26	27	27	23	26	25	20	24	22	17	22	20	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	20	14	21	17	12	21	15	11	18	13	9	16	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	20	14	21	18	13	21	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	15	21	17	12	20	15	11	17	13	9	15	11	13	14	10	11
			Exposed	21	21	21	21	21	18	21	21	17	21	20	15	21	18	13	21	17	12	21	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	21	18	25	18	15	24	16	13	23	14	11	21	12	10	18	11	9
			Exposed	25	25	25	25	25	22	25	24	20	25	22	18	25	20	16	25	18	15	25	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	25	26	26	21	25	23	18	23	21	16	20	18	14	17	15	12	14	13	11
			Exposed	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	23	16	23	20	14	23	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	23	23	20	23	23	17	23	22	16	23	20	14	23	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	23	23	23	23	23	23	23	23	21	23	23	19	23	23	17	23	21	16	23	19	14	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	23	23	17	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	23	27	25	21	27	23	19	27	21	17	26	18	15	25	15	13	23	13	11	20	11	9	17	10	8	15	9	11
			Exposed	27	25	21	27	23	19	27	20	17	27	18	15	27	16	14	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7			
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	28	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	31	31	25	31	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

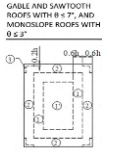
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

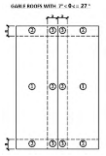
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

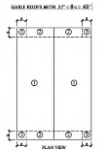
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

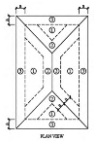












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

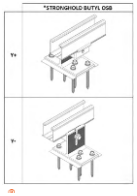
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	14	18	17	12			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	13	18	16	12	18	14	10	17	13	9	15	11	12
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	18	14	11		
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	16	12	18	14	10	17	12	9	15	11	12	13	9	10
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	16	22	18	14	21	16	13			
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	20	17	22	17	14	22	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	24	24	23	23	20	22	22	17	21	20	15			
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	17	12	18	15	11	18	13	9	16	12	13
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	18	13	18	15	11	18	13	9	16	11	12	14	10	11	12	13	9	11	12	8
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	17	12	18	15	11	17	13	9	15	11	13	14	10	11
			Exposed	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	17	12	18	15	11	18	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	18	22	18	15	21	16	13	20	14	11	20	12	10	18	11	9		
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	20	16	22	22	18	15	22	14	11	20	12	10	18	10	8	15	9	11	14	12	10	12	11	9		
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	21	23	23	18	21	20	16	19	17	14	17	15	12	15	13	11
			Exposed	26	26	26	26	26	26	26	26	24	26	26	22	26	25	20	25	23	18	23	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14	20	17	12	20	14	10	17	13	9	15	11	12	13	10	10
			Exposed	20	20	20	20	20	17	20	20	16	20	20	14	20	18	13	20	16	12	20	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	16	20	19	14	20	16	12	19	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	20	20	17	20	20	15	20	19	14	20	17	12	20	15	11	19	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	23	18	15	22	15	13	21	13	11	20	11	9	17	10	8	15	9	11	
			Exposed	24	24	21	24	23	19	24	20	17	24	18	15	24	16	14	24	15	12	24	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	27	27	25	26	26	23	25	25	21	24	22	18	21	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	28	28	25	28	28	22	28	25	20	26	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
70	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	10	15	13	9	15	11	12
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	11			
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	12	16	14	10	16	12	9	15	11	12	13	9	10
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	18	14	19	16	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	19	15	12	19	13	11	19	11	9	17	10	8
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	20	20	20	17	19	19	15
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	13	9	15	12
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	13	9	15	11	12	14	10	11	12	13	9	11	12	8		
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	16	16	12	16	15	11	16	15	11	15	16	12	16	15	11	16	13	9	15	11	13	14	10	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	9	15	11	12	13	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	15	19	16	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	19	15	12	19	13	11	19	11	9	17	10	8
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	21	21	20	20	20	17
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	23	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	14	10	17	13	9	15	11	12	13	10	10
			Exposed	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	12	17	14	10	17	12	9	15	11	12	13	9	10	11	13	9
			Exposed	17	17	17	17	17	15	17	17	14	17	17	12	17	15	11	17	14	10	17	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	15	20	15	13	19	13	11	19	11	9	17	10	8	15	9	11		
			Exposed	21	21	21	21	21	19	21	20	17	21	18	15	21	16	14	21	15	12	21	14	11	20	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	24	24	23	23	21	22	22	18	20	19	15	18	17	13	16	14	11	14	13	10	13	11	9
			Exposed	25	25	25	25	25	22	25	25	20	25	23	18	23	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
80	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13	17	17	11	17	10	8			
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	17	18	18	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	12	13
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	12	13	10	11	12	13	9	11	12	8
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	13	9	14	11	13	10	11	
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	11	14	14	12	14	14	11	14	13	9	14	11	12	13	9	10
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	17	14	11			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	16	14	17	17	14	17	17	15	17	16	13	17	14	11	16	12	10	16	11	9
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	19	19	19	18	18	16	17	17	14	16	15	12
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	14	14	10	15	13	9	15	11	12	13	10	10
			Exposed	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	11	15	13	9	15	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	13	9	15	11	13	14	10	11
			Exposed	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	15	13	9	15	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	15	18	13	11	17	11	9	16	10	8	15	9	11				
			Exposed	19	19	19	19	19	19	19	19	17	19	18	15	19	16	14	19	15	12	19	14	11	19	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	21	20	20	18	19	19	15	18	17	13	16	14	11	14	13	10	13	11	9	
			Exposed	23	23	23	23	23	22	23	23	20	23	23	18	22	21	16	21	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

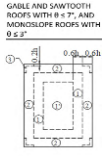
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

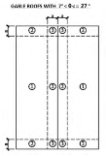
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

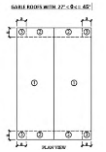
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

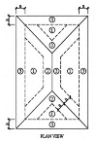












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL OSB #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

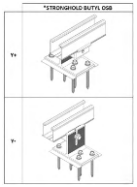
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	12	12
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	12	12	9	10
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	13	11	15	11	9	15	10	8
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	13
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	10	11	12	13	9	11	12	8
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	12	9	12	11	11
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	14	11	15	12	10	14	11	9
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	14	11	15	12	10	15	10	8	15	9	11	14	12	10	12	11	9
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	18	18	18	17	17	16	16	16	14	15	15	12	15	13	11
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	18	18	14	17	15	12	14	13	10	13	11	9	11	10	12	10	9	11
	D	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12	13	10	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	9	13	11	12	13	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	12	13	9	10	11	13	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	12	13	9	10	11	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	15	13	16	13	11	16	11	9	15	10	8	15	9	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	16	14	17	15	12	17	14	11	17	12	9	17	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	19	19	18	18	18	15	17	17	13	16	14	11	14	13	10	13	11	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	20	19	15	19	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9
100	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12	11	11	12
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	9	11	11	12	11	9	10
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	16	13	16	14	11	14	13	10
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	13
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	10	11	11	13	9	11	12	8
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	11	11	11	13	11	10	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	12	11	9	11	11	13	9	10	11	8	9	10	7
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	14	11	14	12	10	13	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	12	10	14	10	8	14	9	11	14	12	10	12	11	9
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	15	15	14	14	14	12	14	13	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	16	15	12	14	13	10	13	11	9	11	10	12	10	9	11	10	9	11
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	10	10	12	12	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	12	12	9	10	11	12	9	10	11	8	9	10	7
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12	12	9	10	12	12	9	9	10	8	8	9	7	11	8	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	13	11	15	11	9	14	9	11	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	12	9	15	10	12	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	17	17	17	17	15	16	16	13	15	14	11	14	13	10	13	11	9
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	18	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	13	10	12	11	9

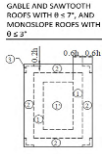
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

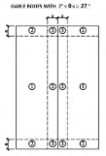
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

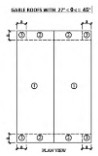
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

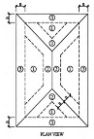












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

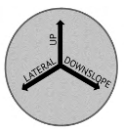
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

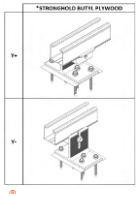
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	40	47	47	36	47	47	32	47	41	29	47	37	26	47	34	23	43	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	47	37	26	47	33	23	41	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	47	47	35	47	44	31	47	38	28	47	34	25	44	31	23	39	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	44	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	48	48	43	48	48	38	48	42	34	48	37	30	48	34	28	48	31	25	48	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	48	33	27	48	30	24	48	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	48	48	48	48	48	48	48	48	41	48	48	37	48	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	48	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	47	39	27	47	35	24	44	31	22	39	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	47	33	24	41	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	8	6	7	7	7	5
		20-27	Interior	48	36	29	48	32	26	48	28	23	46	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	48	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	47	32	23	40	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	41	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
10	B	0-7	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	37	26	38	34	23	38	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	38	37	26	38	33	23	38	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	38	38	35	38	38	31	38	38	28	38	34	25	38	31	23	38	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	38	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	44	44	43	44	44	38	44	42	34	44	37	30	44	34	28	44	31	25	44	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	44	33	27	44	30	24	44	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	47	47	47	47	47	47	47	47	41	47	47	37	47	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	47	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	38	38	27	38	35	24	38	31	22	38	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	38	33	24	38	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	44	36	29	44	32	26	44	28	23	44	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	47	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	38	32	23	38	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	41	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
20	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	18	28	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	28	28	26	28	28	23	28	28	20	28	26	18	28	24	17	28	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	26	19	28	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	28	28	23	28	27	20	28	25	18	28	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	31	25	34	28	23	34	23	19	34	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	34	33	27	34	30	24	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	38	38	38	38	38	38	38	38	38	37	38	33	38	38	30	38	38	30	38	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	38	38	33	38	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	28	28	27	28	28	24	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	12	8	9	10	7	8	9	6	7	8	9	6	7	8	6
		7-20	Interior	28	28	24	28	28	21	28	26	19	28	23	17	28	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	34	34	29	34	32	26	34	28	23	34	25	21	34	23	19	34	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	34	23	19	34	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	38	38	35	38	38	31	38	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	28	28	23	28	28	20	28	26	18	28	23	16	28	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	28	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	28	27	20	28	24	18	28	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	36	29	24	36	26	21	36	23	19	36	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	40	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

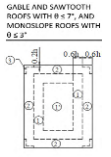
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

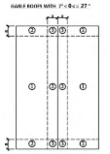
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

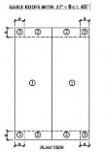
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

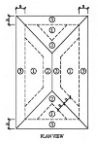












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

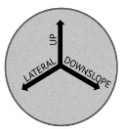
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

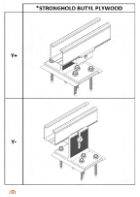
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	15	22	19	13	22	16	11	20	14	10	18	13	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	22	15	22	20	14	22	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	16	23	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	23	23	23	23	23	20	23	23	18	23	22	16	23	20	15	23	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	23	19	28	20	16	28	17	14	26	15	12	23	13	11	20	12	10
			Exposed	28	28	27	28	28	24	28	27	22	28	24	20	28	22	18	28	20	16	28	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	32	32	32	32	32	29	32	32	26	32	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	22	22	18	22	22	16	22	20	14	22	18	13	22	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	5	6	7	7	5
		20-27	Interior	28	28	28	28	28	28	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	28	23	19	28	20	17	28	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	23	23	20	23	23	18	23	22	16	23	19	14	23	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	23	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	30	29	24	30	26	21	30	23	19	30	21	17	30	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	30	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	8	7	6	7	7	5
		27-45	Interior	34	34	29	34	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
40	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	13	21	16	11	20	14	10	18	13	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	20	14	21	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	18	13	21	16	12	19	14	10	17	12	9	15	11	8
			Exposed	21	21	21	21	21	20	21	21	18	21	21	16	21	20	15	21	18	13	21	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	23	19	24	20	16	24	17	14	24	15	12	23	13	11	20	12	10
			Exposed	24	24	24	24	24	24	24	24	22	24	24	20	24	22	18	24	20	16	24	18	15	24	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	23	27	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	28	28	28	28	28	28	28	28	26	28	28	24	28	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	14	21	18	13	21	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	19	14	21	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	21	21	15	21	19	14	21	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	19	16	24	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	24	23	19	24	20	17	24	18	15	24	16	13	24	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	27	26	21	26	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	28	28	23	28	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	16	22	22	18	22	22	16	22	22	17	22	20	15	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	22	22	20	22	22	18	22	22	16	22	19	14	22	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	22	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	26	26	24	26	26	21	26	26	19	26	21	17	26	19	16	26	17	14	26	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	7	6	11	7	8
			Exposed	26	19	16	26	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	30	30	29	30	30	26	30	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
50	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	18	13	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	12	18	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	18	16	18	18	13	18	16	12	18	14	10	17	12	9	15	11	8
			Exposed	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	18	13	18	17	12	18	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11	20	12	10
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	18	15	21	19	15	12	21	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	20	23	22	17	21	19	15	18	16	13	16	15	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	12	18	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	18	18	18	18	18	16	18	18	14	18	18	13	18	16	11	18	15	10	18	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	18	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	18	18	15	18	18	14	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	16	13	21	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	21	21	19	21	20	17	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	21	23	23	19	22	20	16	19	17	14	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	25	25	23	25	25	20	25	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	18	13	19	17	12	19	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	14	19	17	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	19	17	13	19	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	22	22	22	22	22	21	22	22	19	22	21	17	22	22	19	22	22	16	22	22	13	22	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	22	19	16	22	17	14	22	15	12	22	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	26	26	26	26	26	26	26	26	23	26	26	21	25	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	26	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

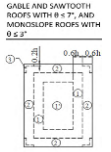
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

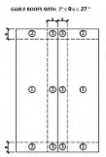
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

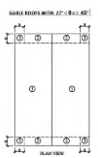
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

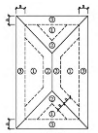












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

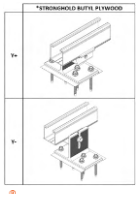
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	14	10	15	13	9			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	15	11	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	18	13	11	18	12	10			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	19	15	12	19	13	11	19	11	9	17	10	8	15	8	7	13	7	6			
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	20	20	20	17	19	19	15	18	16	13	16	15	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7			
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	13	9	15	11	8	14	10	7	12	9	6		
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	16	19	18	13	18	14	11	18	12	10	17	10	8	16	9	7	14	8	6
			Exposed	19	19	19	19	19	17	19	18	15	19	16	13	19	15	12	19	13	11	19	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	19	20	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8			
			Exposed	22	22	22	22	22	20	22	22	18	22	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	10	16	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	16	16	15	16	16	13	16	16	12	16	15	10	16	13	9	16	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	17	17	13	17	16	11	17	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	19	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	8	7	8	7	6	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	22	22	19	22	22	17	21	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
70	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	13	13	13	7	13	9	6	11	8	9
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	11	16	12	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	12	16	13	11	16	11	9	16	10	8	15	8	7	13	7	6	
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	17	18	18	15	17	16	13	16	15	12
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	18	20	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	11	13	13	10	13	13	9	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	9	7	11	8	6	10	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	14	11	16	12	10	15	10	8	14	8	7	11	7	8
			Exposed	16	16	16	16	16	15	16	16	13	16	16	12	16	15	12	16	13	11	16	12	10	16	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	17	18	18	16	17	17	14	16	15	12	14	13	10	13	11	9	11	10	8			
			Exposed	20	20	18	20	20	18	20	20	16	20	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8			
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	7	13	9	6	11	8	9	10	7	8			
			Exposed	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	14	14	13	14	14	11	14	14	10	14	12	9	14	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	13	18	18	13	18	16	10	18	13	11	17	11	9	16	10	8	15	8	7	13	7	6
			Exposed	18	18	16	18	17	14	18	15	12	18	14	11	18	12	10	18	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	8	7	8	7	6	7
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	20	20	19	20	20	17	19	19	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
80	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	7	11	11	9	11	8	9
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	7	11	8	9	10	7	8
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	10	14	11	9	14	10	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	16	15	16	16	13	15	15	12
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	10	14	11	9	14	10	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	16	15	16	16	13	15	15	12
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	10	6	11	8	9	10	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	12	13	13	9	13	10	8	12	9	7	11	8	9	9	7	8
			Exposed	13	13	13	13	13	11	13	13	10	13	12	9	13	11	8	13	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8
			Exposed	16	16	16	16	16	14	16	15	12	16	14	11	16	12	10	16	11	9	16	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	19	19	19	19	19	17	19	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

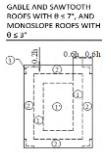
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

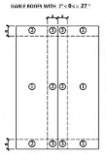
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

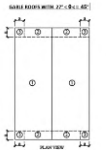
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

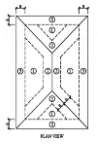












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

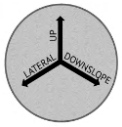
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

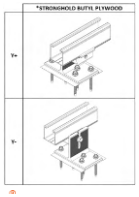
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	6	10	8	9
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	7	10	8	9	10	7	8
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	8	13	8	7	13	7	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	12
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	10	8	10	10	7	10	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	13	10	8	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	8	13	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	14	14	12	13	13	10	13	11	9	11	10	8	
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	9	6	11	8	9	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	7	11	8	9	9	7	8	10	7	7	8	6	6	7	8	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	9	7	11	8	9	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	11	9	7	11	8	9	9	7	8	8	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	11	9	14	10	8	13	8	7	13	7	6	11	7	8
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	12	10	14	11	9	14	10	8	14	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16	16	16	13	15	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
100	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	7	9	8	9	9	7	8
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	8	7	11	7	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	9	6	7	8	9	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	8	6	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	11	10	11	10	8	11	9	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8			
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	7	10	9	6	10	8	9	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	8	10	9	7	10	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	9	7	8	8	6	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	7	10	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	11	13	12	10	12	11	8	11	9	7	9	8	7
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

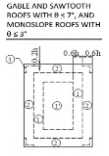
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

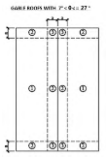
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

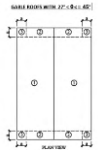
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

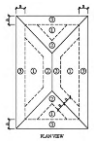












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

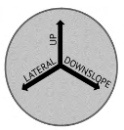
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

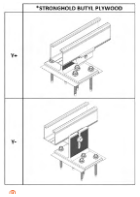
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	78	78	77	78	78	60	78	78	54	78	78	48	78	63	44	78	57	40	78	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	78	63	43	78	56	39	78	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	78	78	59	78	78	53	78	65	47	78	58	42	78	52	38	78	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	78	52	38	65	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	80	80	80	80	80	64	80	80	57	80	63	51	80	57	46	80	51	42	80	47	39	80	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	80	56	46	80	50	41	80	45	37	80	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	62	81	81	56	81	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	81	81	55	81	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	78	68	46	78	59	41	78	53	37	67	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	78	55	40	78	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	80	60	49	80	53	44	80	48	39	80	43	35	75	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	74	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	81	81	59	81	70	52	81	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	78	55	38	73	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	81	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
10	B	0-7	Interior	64	64	64	64	64	60	64	64	54	64	64	48	64	63	44	64	57	40	64	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	64	63	43	64	56	39	64	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	64	64	59	64	64	53	64	64	47	64	58	42	64	52	38	64	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	64	52	38	64	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	64	73	73	57	73	63	51	73	57	46	73	51	42	73	47	39	73	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	73	56	46	73	50	41	73	45	37	73	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	62	78	78	56	78	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	78	78	55	78	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	64	64	46	64	59	41	64	53	37	64	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	64	55	40	64	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	73	60	49	73	53	44	73	48	39	73	43	35	73	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	73	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	78	78	59	78	70	52	78	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	64	55	38	64	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	81	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
20	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	47	36	47	43	30	47	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	47	47	43	47	47	39	47	47	35	47	45	31	47	40	28	47	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	48	48	48	48	48	48	48	48	47	48	48	42	48	48	38	48	48	35	48	43	32	48	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	48	48	38	48	46	34	48	41	30	48	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	58	58	58	58	58	58	58	58	57	58	58	51	58	57	46	58	51	42	58	47	39	58	39	32	58	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	58	56	46	58	50	41	58	45	37	58	40	33	58	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	64	51	64	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	64	64	55	64	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	47	47	46	47	47	41	47	47	37	47	47	33	47	43	30	47	39	27	47	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	47	42	30	47	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	48	48	40	48	48	36	48	44	32	48	39	29	48	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	48	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	58	58	49	58	53	44	58	48	39	58	43	35	58	39	32	58	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	58	38	32	58	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	64	64	59	64	64	52	64	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	47	47	38	47	47	43	30	47	39	27	47	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13		
			Exposed	47	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	48	46	33	48	41	30	48	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	60	49	41	60	44	36	60	39	32	60	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	66	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

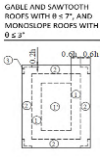
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

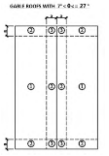
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

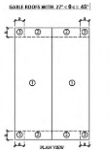
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

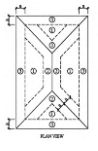












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

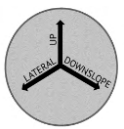
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

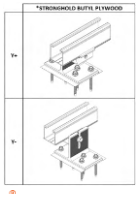
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	30	37	37	32	37	37	28	20	34	24	17	30	22	15
			Exposed	37	37	37	37	37	37	37	37	35	37	37	31	37	37	28	37	37	26	37	37	33	23	37	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	36	27	38	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	38	38	38	38	38	34	38	38	30	38	37	27	38	34	25	38	31	23	38	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	47	39	48	39	32	48	34	28	48	29	24	44	25	21	38	22	18	34	20	16
			Exposed	48	48	46	48	48	41	48	45	37	48	40	33	48	37	30	48	33	27	48	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	46	54	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	54	54	54	54	54	49	54	54	44	54	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	35	25	37	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	37	37	30	37	37	26	37	34	24	37	30	21	37	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	36	26	38	32	24	38	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	38	36	26	38	32	23	38	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	48	48	48	48	48	44	48	48	39	48	43	35	48	39	32	48	35	29	48	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	48	38	32	48	34	28	48	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	54	54	54	54	54	52	54	54	47	54	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	50	49	41	50	44	36	50	39	32	50	35	29	50	32	26	50	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	50	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	57	57	49	57	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	32	22	35	28	20	34	24	17	30	22	15
			Exposed	35	35	35	35	35	35	35	35	35	35	35	31	35	35	28	35	35	26	35	35	33	23	35	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	27	35	31	23	35	27	20	32	23	17	28	21	15	25	18	13
			Exposed	35	35	35	35	35	34	35	35	30	35	35	27	35	34	25	35	31	23	35	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	39	32	41	34	28	41	29	24	41	25	21	38	22	18	34	20	16
			Exposed	41	41	41	41	41	41	41	41	37	41	40	33	41	37	30	41	33	27	41	30	25	41	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	45	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	47	47	47	47	47	47	47	47	44	47	47	40	47	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	35	35	30	35	35	26	35	34	24	35	30	21	35	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	35	35	35	35	35	35	35	35	32	35	35	29	35	35	26	35	32	24	35	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	35	35	26	35	32	23	35	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	41	41	41	41	41	41	41	41	39	41	41	35	41	39	32	41	35	29	41	32	26	41	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	41	38	32	41	34	28	41	31	25	41	28	23	41	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	42	47	47	47	47	38	46	44	35	44	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	47	47	38	47	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	43	43	41	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	43	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	43	32	26	43	28	23	43	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	15	12	11	~~9~~
		27-45	Interior	50	50	49	50	50	43	50	49	39	49	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
50	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	28	20	30	24	17	30	22	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	28	20	30	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23	30	27	20	30	23	17	28	21	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	23	30	30	28	21	30	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	34	28	35	29	24	35	25	21	34	22	18	33	20	16
			Exposed	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	33	27	35	30	25	35	26	21	35	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	40	40	33	38	36	29	35	32	25	31	28	22	28	25	20
			Exposed	41	41	41	41	41	41	41	41	41	41	41	40	41	41	36	41	41	33	41	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	21	30	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	30	30	30	30	30	26	30	30	24	30	30	21	30	28	19	30	25	18	30	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	30	22	30	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	30	30	26	30	30	23	30	28	21	30	26	19	30	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	32	26	35	27	22	35	23	19	33	20	16	30	17	14	26	15	13	23	14	11
			Exposed	35	35	32	35	34	28	35	31	25	35	28	23	35	25	21	35	23	19	35	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	35	39	39	32	37	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	41	41	38	41	41	34	41	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	32	32	32	32	32	32	32	32	32	32	32	27	32	32	25	32	32	23	32	29	21	32	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	32	32	25	32	32	22	32	28	20	32	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	33	33	33	33	33	30	33	33	27	33	33	24	33	30	22	33	27	20	33	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	33	29	22	33	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	38	38	38	38	38	36	38	38	32	38	35	29	38	32	26	38	29	24	38	27	22	37	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	38	32	26	38	28	23	38	26	21	38	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	44	44	44	44	44	43	44	44	39	43	43	35	42	40	32	40	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	44	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

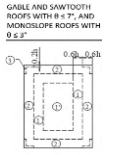
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

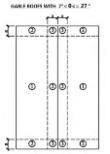
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

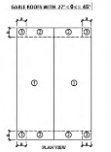
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

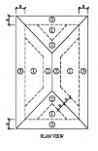












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

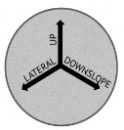
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

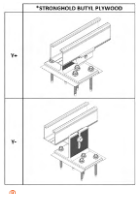
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	24	17	25	25	25	22	25	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	24	17	25	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	23	17	25	21	15	25	18
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	17	25	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	24	31	31	25	21	31	22	18	30	20	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	30	25	31	26	21	31	22	18	31	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	33	34	34	29	33	32	25	31	28	22	28	25	20
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	19	25	22	15	23	17	12	21	15	10
			Exposed	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	25	18	25	23	16	25	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	18	25	21	16	25	18	14	22	16	12
			Exposed	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	21	16	25	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	24	31	31	25	31	23	19	30	20	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	30	37	37	31	25	37	27	22	35	25	20
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	28	28	23	28	28	21	28	25	17	28	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	28	28	25	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	15	16	12	9
		7-20	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	27	20	28	25	18	28	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	28	28	22	28	26	19	28	24	17	28	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	32	26	33	29	24	33	27	22	33	22	19	32	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	33	32	26	33	28	23	33	26	21	33	23	19	33	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	35	38	38	32	37	37	29	35	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	39	39	32	39	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
70	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	15			
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	16	22	16	11	19	14	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	15	22	18	13
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	16	22	16	11	18	13	15
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	22	18	27	20	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	26	21	27	22	18	27	19	16	27	16	14	25	14	12	22	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	31	29	30	30	25	32	28	22	29	28	20
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	15	22	19	13	22	17	12	21	15	10
			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	19	14	22	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	18	22	22	16	22	18	14	22	16	12	19	14	10
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	21	16	22	22	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	23	19	27	20	16	26	17	14	25	15	13	23	14	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	23	27	25	21	27	23	19	27	21	17	27	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	27	29	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	33	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	17	24	21	15	24	18	13	22	16	11	19	14	15	17	12	13
			Exposed	24	24	24	24	24	22	24	24	20	24	24	18	24	23	16	24	21	15	24	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	18	24	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	24	24	22	24	24	19	24	24	17	24	21	16	24	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	29	24	30	27	22	30	22	19	29	19	16	27	17	14	25	14	12	22	13	10	19	11	14
			Exposed	30	30	26	30	28	23	30	26	21	30	23	19	30	21	17	30	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	36	36	36	36	36	36	36	36	36	35	35	34	34	32	33	33	29	32	32	26	31	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11	
			Exposed	36	36	32	36	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18	24	20	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	25	27	27	22	25	25	20
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	13	19	17	12	19	15	10
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	16	12	19	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	14	19	16	12	19	14	10	17	13	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	19	14	19	19	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	20	16	24	17	14	23	15	13	22	14	11
			Exposed	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	18	15	24	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	27	27	27	23	26	25	20	24	22	17	22	19	15	19	17	14
			Exposed	30	30	30	30	30	30	30	30	27	30	30	25	30	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13			
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	13	21	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	15	21	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	18	13	21	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	22	19	26	19	16	25	17	14	24	14	12	22	13	10	19	11	14			
			Exposed	26	26	26	26	26	23	26	26	21	26	23	19	26	21	17	26	19	16	26	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	33	33	33	33	33	33	33	33	32	32	32	31	31	31	31	31	31	29	30	30	26	28	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	33	33	32	33	33	28	33	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

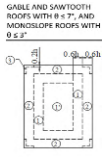
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

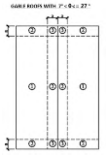
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

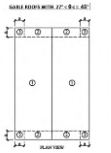
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

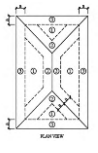












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

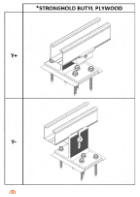
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	34	39	39	30	39	39	27	39	35	24	39	31	22	39	28	20	36	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	39	31	21	39	27	19	34	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	39	39	29	39	36	26	39	32	23	39	29	21	37	26	19	33	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	37	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	40	40	36	40	40	32	40	35	28	40	31	25	40	28	23	40	25	21	40	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	40	28	23	40	25	20	40	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	41	41	41	41	41	40	41	41	34	41	41	31	41	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	41	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	39	33	23	39	29	20	37	26	18	33	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	39	27	20	34	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	40	30	24	40	26	22	40	24	19	38	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	41	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	39	27	19	34	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	40	24	20	40	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
10	B	0-7	Interior	32	32	32	32	32	30	32	32	27	32	32	24	32	31	22	32	28	20	32	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	32	31	21	32	27	19	32	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	32	32	29	32	32	26	32	32	23	32	29	21	32	26	19	32	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	32	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	37	37	36	37	37	32	37	35	28	37	31	25	37	28	23	37	25	21	37	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	37	28	23	37	25	20	37	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	39	39	39	39	39	39	39	39	34	39	39	31	39	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	39	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	32	32	23	32	29	20	32	26	18	32	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	32	27	20	32	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	37	30	24	37	26	22	37	24	19	37	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	39	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	32	27	19	32	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	38	24	20	38	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
20	B	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	23	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	17	24	21	16	24	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	24	24	19	24	23	17	24	20	15	24	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	29	28	23	29	25	20	29	22	18	29	20	16	29	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	32	32	27	32	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	23	23	23	23	23	20	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	23	21	15	23	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	8	9	6	6	7	8	5	6	7	5	8	6	5
		7-20	Interior	24	24	20	24	24	18	24	22	16	24	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	29	29	24	29	26	22	29	24	19	29	21	17	29	19	16	29	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	29	19	16	29	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	32	32	29	32	32	26	32	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	23	23	19	23	23	17	23	21	15	23	19	13	23	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	24	23	16	24	20	15	24	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	30	24	20	30	22	18	30	19	16	30	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

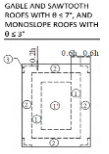
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

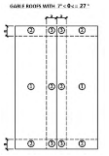
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

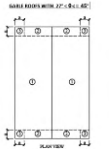
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

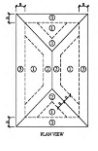












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

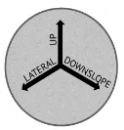
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

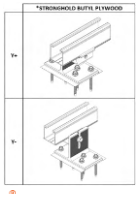
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	13	19	16	11	19	15	10	17	12	8	15	11	7						
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	18	13	19	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	18	13	19	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	19	19	19	19	19	17	19	19	15	19	18	13	19	17	12	19	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	19	16	24	17	14	24	14	12	22	12	10	19	11	9	17	10	8
			Exposed	24	24	23	24	24	20	24	22	18	24	20	16	24	18	15	24	16	13	24	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	27	27	27	27	27	24	27	27	22	27	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	19	13	19	17	12	19	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	19	19	19	19	19	18	19	19	16	19	19	14	19	18	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	19	18	13	19	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	24	24	24	24	24	22	24	24	19	24	21	17	24	19	16	24	17	14	24	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	24	19	16	24	17	14	24	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	27	27	27	27	27	26	27	27	23	27	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	19	19	19	19	19	17	19	19	15	19	19	13	19	17	12	19	16	11	19	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	19	17	12	19	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	8	9	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	25	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	10	8	6	9	7	6	8	7	5
		27-45	Interior	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
40	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	10	17	12	8	15	11	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	17	13	17	17	14	17	14	10	17	14	10	17	12	9	11	8	8	9	7	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	15	11	17	13	10	16	11	8	14	10	7	12	9	6
			Exposed	17	17	17	17	17	17	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	16	20	17	14	20	14	12	20	12	10	19	11	9	17	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	15	20	16	13	20	15	12	20	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	22	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	17	17	15	17	17	13	17	17	12	17	15	10	17	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	17	17	13	17	16	11	17	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	13	18	17	12	18	16	11	18	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	21	16	13	21	14	11	21	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	10	7	6	9	7	6	8	7	5
		27-45	Interior	25	25	24	25	25	21	25	24	19	24	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	8	7	7	8	6	9	7	9	8	6	8	7	5
50	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	8	15	11	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	10	15	11	8	14	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	14	10	15	15	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	14	12	17	12	10	17	11	9	17	10	8
			Exposed	17	17	17	17	17	17	17	17	16	17	17	15	17	16	13	17	17	12	17	17	13	17	17	13	16	17	10	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	16	19	18	14	18	16	12	15	14	11	14	12	10
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	10	15	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	15	15	15	15	15	13	15	15	12	15	15	10	15	14	9	15	12	9	15	11	8	13	9	7	11	8	8	9	7	6	8	6	6	7	8	6	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	15	15	13	15	15	11	15	14	10	15	13	9	15	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	6	7	5	8	6	4	7	5	8	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	13	11	17	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	17	17	16	17	17	14	17	15	12	17	14	11	17	12	10	17	11	9	17	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	17	20	20	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	16	11	16	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	16	15	11	16	15	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	19	19	19	19	19	18	19	19	16	19	17	14	19	16	13	19	14	12	19	13	11	18	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	19	16	13	19	14	11	19	13	10	19	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	22	22	22	22	22	22	21	22	19	21	21	17	21	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

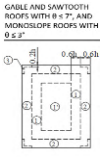
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

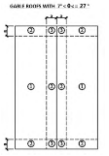
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

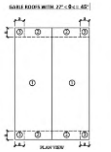
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

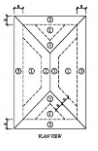












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

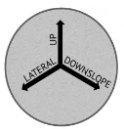
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

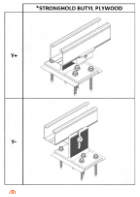
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	8	12	11	7						
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	8	13	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	12	15	12	10	15	11	9	15	10	8			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	10	15	11	9	15	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	14	16	16	12	15	14	11	14	12	10			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	10	7	12	9	6	11	8	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	11	6	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7			
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	14	14	12	14	14	11	14	14	10	14	12	9	14	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	14	14	11	14	13	9	14	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	13	11	16	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	17	16	13	17	14	11	17	13	10	17	11	9	17	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	19	19	17	19	19	16	18	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	20	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
70	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	11	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	11	8	8	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	10	7	11	9	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	11	9	13	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	13	9	8	13	8	7	12	7	6	11	7	8
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	15	15	12	14	14	11	14	12	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	10	8						
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	8	11	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	9	11	11	7	11	8	6	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	11	9	13	10	8	13	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	14	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	12	12	11	12	12	9	12	12	8	12	10	8	12	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	13	11	15	11	9	14	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	15	15	13	15	14	11	15	13	10	15	11	9	15	10	8	15	11	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	18	18	18	18	18	18	18	18	18	17	17	17	17	17	16	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	18	18	16	18	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	8	7	7	8	6	9	7	9	8	6	8	7	5
80	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7	7
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	12	10	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	8
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	12	13	13	11	13	12	10
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	6	7	8	6	6	7	5	8	6	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	7	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	8	9	9	7	9	8	6	8	7	6	8	7	6	7	8	6	6	7	5	8	6	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	10	8	12	8	7	11	7	6	11	7	8			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	12	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	12	13	13	11	13	12	10			
			Exposed	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6		
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	6	10	9	6	10	8	8	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6	10	8	8	9	7	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	7	10	8	9	9	7	7	8	9	6	7	8	6	7	8	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	8	13	9	7	12	8	7	8	7	6	7	7	5
			Exposed	13	13	13	13	13	13	13	13	13	13	13	9	13	10	8	13	9	8	13	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	14	14	11	14	12	9	12	11	8	10	9	7	9	8	6	8	7	6	8	7	8
			Exposed	16	16	16	16	16	14	16	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

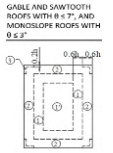
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

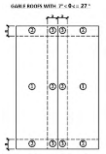
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

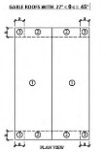
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

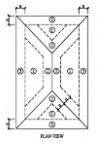












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

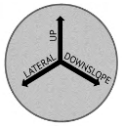
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

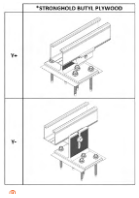
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	6	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	6	10	6	8
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	11	12	12	10	12	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	11	10	8	10	9	7	9	8	6	9	8	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	9	8	7	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	9	8	7	7	8	6	6	7	8	6	8	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	7	8	6	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	7	6	10	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	8	11	9	7	9	8	7	9	8	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6	8	7	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	8	9	7	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4	7	5	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	7	8	9	6	7	8	9	6	7	8	6
			Exposed	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	9	8	11	8	7	11	7	6	11	6	8	9	8	7
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	11	8	12	9	8	12	8	7	12	7	6	11	6	8	9	8	7	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	13	13	13	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
100	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	7	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	7	8	6	6	8	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	9	8	7	9	7	6	9	6	8
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	7	8	7	7	8
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	7	7	7	6	6	7	8	6	8	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	7	8	6	8	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	7	9	7	6	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	8	7	7	8	6	6	7	8	6	8	7	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	8	8	7	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	9	6	7	8	5	6	7	5	8	6	4	7	5	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	6	6	7	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	9	8	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	6	10	6	8	9	8	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	8	10	8	7	10	7	6	10	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

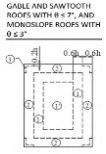
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

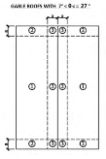
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

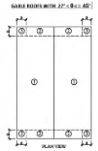
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

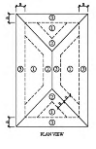












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

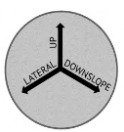
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

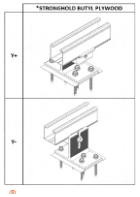
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	76	76	71	76	76	59	76	76	53	76	74	47	76	62	43	76	56	39	76	51	35	59	43	30	43	31	22	38	27	19	30	36	25	43	31	22	38	27	19
			Exposed	76	61	43	76	54	38	73	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	77	77	58	77	77	52	77	63	46	77	57	41	77	51	37	65	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	77	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	78	78	78	78	78	63	78	78	56	78	61	50	78	55	45	78	50	41	78	46	38	75	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	78	55	45	78	49	40	78	44	36	78	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	79	79	79	79	79	79	79	79	77	79	79	60	79	79	54	79	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	79	79	54	79	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	76	65	45	76	58	40	76	51	36	65	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	77	54	40	77	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	78	59	48	78	52	43	78	46	38	78	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	79	79	57	79	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	76	53	37	69	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	62	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	78	48	40	78	43	35	74	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	79	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
10	B	0-7	Interior	62	62	62	62	62	59	62	62	53	62	62	47	62	62	43	62	56	39	62	51	35	59	43	30	50	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	62	61	43	62	54	38	62	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	63	63	58	63	63	52	63	63	46	63	57	41	63	51	37	63	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	63	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	71	71	71	71	71	63	71	71	56	71	61	50	71	55	45	71	50	41	71	46	38	71	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	71	55	45	71	49	40	71	44	36	71	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	60	77	77	54	77	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	77	77	54	77	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	62	62	45	62	58	40	62	51	36	62	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	63	54	40	63	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	71	59	48	71	52	43	71	46	38	71	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	77	77	57	77	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	62	53	37	62	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	62	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	73	48	40	73	43	35	73	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	78	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
20	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	46	35	46	43	30	46	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	46	46	43	46	46	38	46	46	34	46	44	30	46	39	28	46	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	46	46	34	46	42	31	46	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	46	46	37	46	45	33	46	41	30	46	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	50	56	55	45	56	50	41	56	46	38	56	39	32	56	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	56	55	45	56	49	40	56	44	36	56	39	32	56	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	60	63	63	54	63	63	49	63	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	63	63	54	63	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	46	46	45	46	46	40	46	46	36	46	46	32	46	42	29	46	38	27	46	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	46	42	29	46	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	46	46	40	46	46	35	46	43	31	46	39	28	46	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	46	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	56	56	48	56	52	43	56	46	38	56	42	34	56	38	31	56	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	56	38	31	56	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	63	63	57	63	63	51	63	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	46	46	37	46	46	33	46	42	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	46	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	46	45	33	46	40	29	46	36	26	44	32	24	40	29	21	34	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11	13	14	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	59	48	40	59	43	35	59	38	32	59	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	65	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

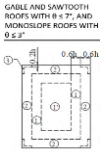
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

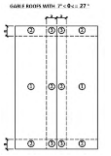
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

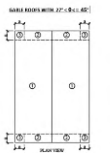
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

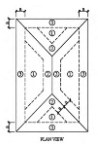












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

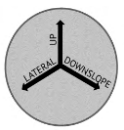
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

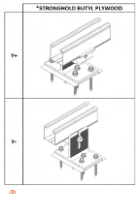
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	36	25	37	31	22	37	27	19	33	24	17	29	21	15
			Exposed	37	37	37	37	37	37	37	37	34	37	37	30	37	37	28	37	36	25	37	33	23	37	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	36	26	37	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	37	37	37	37	37	33	37	37	30	37	36	27	37	33	24	37	30	22	37	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	46	38	47	39	32	47	28	23	43	25	20	38	27	22	33	19	16			
			Exposed	47	47	45	47	47	40	47	44	36	47	39	32	47	36	29	47	32	27	47	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	45	53	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	53	53	53	53	53	48	53	53	43	53	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	32	37	37	29	37	37	27	37	35	24	37	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	37	37	29	37	37	26	37	33	23	37	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	37	37	37	37	37	35	37	37	31	37	37	28	37	35	26	37	32	23	37	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	37	35	26	37	31	23	37	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	47	47	47	47	47	43	47	46	38	47	42	34	47	38	31	47	34	28	47	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	47	38	31	47	34	28	47	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	53	53	53	53	53	51	53	53	46	53	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	33	37	37	30	37	37	27	37	35	24	37	31	22	37	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	37	34	24	37	31	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	49	48	40	49	43	35	49	38	32	49	35	29	49	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	49	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	55	55	48	55	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
40	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	25	34	31	22	34	27	19	33	24	17	29	21	15
			Exposed	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	33	23	34	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	26	34	30	22	34	26	19	31	23	17	28	20	15	24	18	13
			Exposed	34	34	34	34	34	33	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	39	32	40	33	27	40	28	23	40	25	20	38	22	18	33	19	16
			Exposed	40	40	40	40	40	40	40	40	36	40	39	32	40	36	29	40	32	27	40	30	24	40	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	38	44	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	46	46	46	46	46	46	46	46	43	46	46	39	46	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	34	24	34	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	34	34	29	34	34	26	34	33	23	34	30	21	34	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	34	26	34	32	23	34	34	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	34	34	26	34	31	23	34	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	40	40	40	40	40	40	40	40	38	40	40	34	40	38	31	40	34	28	40	31	26	40	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	40	38	31	40	34	28	40	30	25	40	27	22	40	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	45	43	34	43	39	31	37	33	26	32	28	22	29	25	19	24	21	17	21	19	15	19	17	13
			Exposed	46	46	37	46	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	27	36	35	24	36	31	22	36	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	36	34	24	36	31	21	36	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	42	42	40	42	42	35	42	38	32	42	35	29	42	31	26	42	29	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	42	31	26	42	28	23	42	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	48	48	48	48	48	42	48	48	38	47	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
50	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	27	19	29	24	17	29	21	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	27	19	29	23	17	28	20	14	24	18	12	21	16	11	19	14	15			
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	23	17	28	20	15	24	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	22	30	27	20	30	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	33	27	34	28	23	34	25	20	34	22	18	33	19	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	27	34	30	24	34	25	21	34	24	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	39	39	33	37	36	28	35	31	25	31	27	22	27	24	19
			Exposed	40	40	40	40	40	40	40	40	40	40	40	39	40	40	35	40	40	32	40	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	29	20	29	25	17	29	21	15	26	19	13	23	16	12	20	15	16
			Exposed	29	29	29	29	29	26	29	29	23	29	29	21	29	27	19	29	24	17	29	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	29	21	30	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14	
			Exposed	30	30	26	30	30	23	30	28	20	30	25	18	30	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	31	26	34	26	22	34	23	19	33	20	16	29	17	14	26	15	12	23	13	11
			Exposed	34	34	31	34	34	28	34	30	25	34	27	22	34	25	20	34	22	18	34	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	34	38	38	31	36	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	40	40	37	40	40	33	40	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	27	31	31	24	31	31	22	31	29	20	31	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	31	31	24	31	31	21	31	27	19	31	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	32	32	32	32	32	29	32	32	26	32	32	24	32	29	21	32	26	19	32	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	32	29	21	32	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	37	37	37	37	37	35	37	37	32	37	35	29	37	31	26	37	29	23	37	26	21	36	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	37	31	26	37	28	23	37	25	21	37	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	43	43	43	43	43	43	43	43	38	42	42	34	41	39	31	39	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	43	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

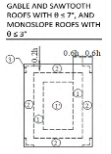
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

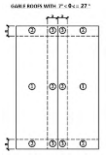
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

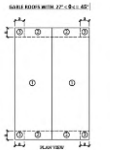
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

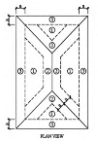












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

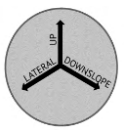
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

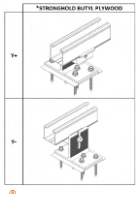
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	24	17	25	21	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	17	25	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	17	25	20	15	24	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	20	15	23	17	13	20	15	11	18	13	15	16	12	13			
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	23	30	25	20	30	27	22	29	19	16			
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	30	25	21	30	21	18	30	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	33	34	34	28	32	31	25	31	27	22	27	24	19
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	17	25	21	15	25	19	13	23	16	12	20	15	16
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	22	16	25	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			Exposed	25	25	25	25	25	25	23	25	25	20	25	25	18	25	23	17	25	21	15	25	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	25	30	27	22	30	25	20	30	22	18	30	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11		
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	34	35	35	31	33	33	26	31	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	36	36	36	36	36	36	30	36	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13		
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	28	28	28	28	28	28	28	28	26	28	28	24	28	28	21	28	26	19	28	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	28	28	21	28	26	19	28	23	17	28	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	9
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	31	26	33	29	23	33	26	21	32	22	18	31	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	33	31	26	33	28	23	33	25	21	33	22	19	33	20	17	32	19	15	29	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	34	37	37	31	36	36	28	35	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	38	38	31	38	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	20	14	21	18	12	21	16	11	19	14	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	20	15
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	25	20	27	22	18
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	21	18	27	18	15	27	16	13	24	14	12	22	13	10
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	30	30	28	29	29	25	28	27	22	27	24	19
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	15	21	19	13	21	16	12	20	15	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	13	21	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	21	15	22	18	13	22	16	12	19	14	16			
			Exposed	22	22	22	22	22	22	20	22	22	18	22	22	17	22	21	15	22	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9		
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	26	22	27	23	17	26	20	16	25	17	14			
			Exposed	27	27	27	27	27	27	25	27	27	22	27	25	20	27	22	18	27	22	18	27	20	17	27	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	32	31	31	31	30	30	26	28	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	33	33	33	33	33	33	30	33	33	27	33	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13		
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	17	23	21	15	23	18	13	23	16	11	19	14	15	17	12	13
			Exposed	23	23	23	23	23	21	23	23	19	23	23	17	23	22	16	23	20	14	23	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	24	24	21	24	24	19	24	23	17	24	21	15	24	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	9
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	23	29	26	21	29	22	18	28	19	15	27	16	13	24	14	12	21	12	10	19	11	14
			Exposed	29	29	26	29	28	23	29	25	21	29	22	19	29	20	17	29	19	15	29	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	35	35	35	35	35	35	35	35	35	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	35	35	31	35	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	11	19	14	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	22	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	25	26	26	22	25	24	19
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	25	29	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13	19	16	12	19	15	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	19	13	19	14	15	17	12	13	15	16	11	13	14	10			
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	18	13	19	16	12	19	14	16	17	12	14
			Exposed	19	19	19	19	19	19	19	19	19	18	19	19	17	19	19	15	19	19	14	19	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9		
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	23	20	16	23	17	14	22	15	12	22	13	11
			Exposed	23	23	23	23	23	23	23	23	23	22	23	23	20	23	22	18	23	20	17	23	17	14	23	15	12	22	13	10	19	11	14	17	15	12	15	13	11		
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	27	27	26	26	26	22	25	25	19	24	21	17	21	19	15	19	17	13
			Exposed	30	30	30	30	30	30	30	30	30	27	30	30	24	29	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13		
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13
			Exposed	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	19	13	21	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8		
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	20	15	21	17	13	21	15	11	18	13	15	16	11	13	14	11
			Exposed	21	21	21	21	21	19	21	21	21	15	21	19	14	21	17	13	21	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	9		
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	25	16	13	24	14	12	21	12	10	19	11	14			
			Exposed	26	26	26	26	26	23	26	25	21	26	22	19	26	20	17	26	19	15	26	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	31	31	31	30	30	28	29	29	26	28	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11	
			Exposed	32	32	31	32	32	28	32	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

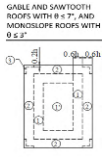
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

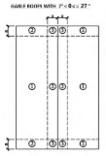
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

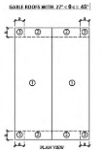
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

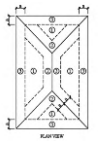












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

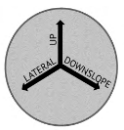
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

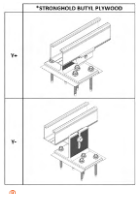
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	40	47	47	36	47	47	32	47	41	29	47	37	26	47	34	23	43	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	47	37	26	47	33	23	41	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	47	47	35	47	44	31	47	38	28	47	34	25	44	31	23	39	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	44	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	48	48	43	48	48	38	48	42	34	48	37	30	48	34	28	48	31	25	48	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	48	33	27	48	30	24	48	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	48	48	48	48	48	48	48	48	41	48	48	37	48	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	48	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	47	39	27	47	35	24	44	31	22	39	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	47	33	24	41	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	8	6	7	7	7	5
		20-27	Interior	48	36	29	48	32	26	48	28	23	46	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	48	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	47	32	23	40	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	41	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	9	7	6	8	6	6
10	B	0-7	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	37	26	38	34	23	38	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	38	37	26	38	33	23	38	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	38	38	35	38	38	31	38	38	28	38	34	25	38	31	23	38	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	38	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	44	44	43	44	44	38	44	42	34	44	37	30	44	34	28	44	31	25	44	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	44	33	27	44	30	24	44	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	47	47	47	47	47	47	47	47	41	47	47	37	47	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	47	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	38	38	27	38	35	24	38	31	22	38	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	38	33	24	38	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	44	36	29	44	32	26	44	28	23	44	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	47	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	38	32	23	38	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
20	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	18	28	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	28	28	26	28	28	23	28	28	20	28	26	18	28	24	17	28	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	26	19	28	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	28	28	23	28	27	20	28	25	18	28	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	31	25	34	28	23	34	23	19	34	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	34	33	27	34	30	24	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	38	38	38	38	38	38	38	38	38	37	38	33	38	38	30	38	38	30	38	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	38	38	33	38	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	28	28	27	28	28	24	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	12	8	9	10	7	8	9	6	7	8	9	6	7	8	6
		7-20	Interior	28	28	24	28	28	21	28	26	19	28	23	17	28	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	34	34	29	34	32	26	34	28	23	34	25	21	34	23	19	34	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	34	23	19	34	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	38	38	35	38	38	31	38	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	28	28	23	28	28	20	28	26	18	28	23	16	28	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	28	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	28	27	20	28	24	18	28	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	36	29	24	36	26	21	36	23	19	36	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	40	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

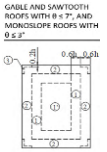
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

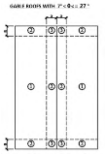
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

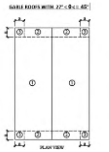
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

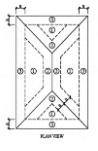












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

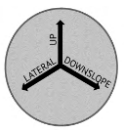
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

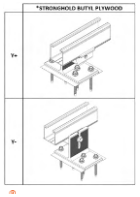
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	21	22	22	18	22	22	15	22	19	13	22	16	11	20	14	10	18	13	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	22	15	22	20	14	22	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	16	23	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	23	23	23	23	23	20	23	23	18	23	22	16	23	20	15	23	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	23	19	28	20	16	28	17	14	26	15	12	23	13	11	20	12	10
			Exposed	28	28	27	28	28	24	28	27	22	28	24	20	28	22	18	28	20	16	28	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	32	32	32	32	32	29	32	32	26	32	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	22	22	18	22	22	16	22	20	14	22	18	13	22	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	6	7	7	7	5
		20-27	Interior	28	28	28	28	28	28	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	28	23	19	28	20	17	28	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	6	7	8	6	5
		7-20	Interior	23	23	20	23	23	18	23	22	16	23	19	14	23	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	23	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	30	29	24	30	26	21	30	23	19	30	21	17	30	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	30	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	8	7	6	7	7	5
		27-45	Interior	34	34	29	34	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	8	7	6	8	6	6
40	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	13	21	16	11	20	14	10	18	13	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	20	14	21	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	18	13	21	16	12	19	14	10	17	12	9	15	11	8
			Exposed	21	21	21	21	21	21	21	21	18	21	21	16	21	20	15	21	18	13	21	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	23	19	24	20	16	24	17	14	24	15	12	23	13	11	20	12	10
			Exposed	24	24	24	24	24	24	24	24	22	24	24	20	24	22	18	24	20	16	24	18	15	24	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	23	27	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	28	28	28	28	28	28	28	28	26	28	28	24	28	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	14	21	18	13	21	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	19	14	21	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	21	21	15	21	19	14	21	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	6	7	7	7	5
		20-27	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	19	16	24	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	24	23	19	24	20	17	24	18	15	24	16	13	24	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	27	26	21	26	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	28	28	23	28	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	16	22	22	18	22	22	16	22	22	17	22	20	15	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	6	5
		7-20	Interior	22	22	20	22	22	18	22	22	16	22	19	14	22	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	22	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	26	26	24	26	26	21	26	24	19	26	21	17	26	19	16	26	17	14	26	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	26	19	16	26	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	30	30	29	30	30	26	30	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	8	7	6	8	6	6
50	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	18	13	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	12	18	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	14	18	18	16	18	18	13	18	16	12	18	14	10	17	12	9	15	11	8
			Exposed	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	18	13	18	17	12	18	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11	20	12	10
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	18	15	21	19	15	18	16	12	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	20	23	22	17	21	19	15	18	16	13	16	15	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	12	18	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	18	18	18	18	18	16	18	18	14	18	18	13	18	16	11	18	15	10	18	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	18	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	18	18	15	18	18	14	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	6	7	7	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	16	13	21	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	21	21	19	21	20	17	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	21	23	23	19	22	20	16	19	17	14	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	25	25	23	25	25	20	25	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	18	13	19	17	12	19	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	6	5
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	14	19	17	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	19	17	13	19	16	11	19	16	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	22	22	22	22	22	21	22	22	19	22	21	17	22	22	16	22	17	14	22	16	13	22	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	22	19	16	22	17	14	22	15	12	22	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	26	26	26	26	26	26	26	26	23	26	26	21	25	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	26	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

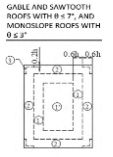
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

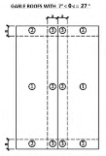
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

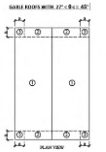
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

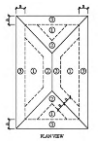












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

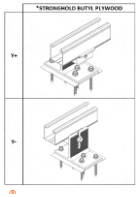
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	14	10	15	13	9			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	15	11	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	18	13	11	18	12	10			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	19	15	12	19	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	20	20	20	17	19	19	15	18	16	13	16	15	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	10	15	15	13	9	15	11	8	14	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	16	19	18	14	19	16	13	18	14	11	18	12	10	17	10	8	16	9	7
			Exposed	19	19	19	19	19	17	19	18	15	19	16	13	19	15	12	19	13	11	19	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	20	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	22	22	22	22	22	20	22	22	18	22	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	10	16	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	16	16	15	16	16	13	16	16	12	16	15	10	16	13	9	16	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	17	17	13	17	16	11	17	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	19	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	8	7	6	7	7	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	22	22	19	22	22	17	21	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
70	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	13	13	13	12	13	13	9	13	11	8
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	11	16	12	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	12	16	13	11	16	11	9	16	10	8	15	8	7	13	7	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	17	18	18	15	17	16	13	16	15	12
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	18	20	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	9	13	11	8	13	10	7	12	9	6			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	9	7	11	8	6	10	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	14	11	16	12	10	15	10	8	14	8	7	13	7	6
			Exposed	16	16	16	16	16	15	16	16	13	16	16	13	16	15	12	16	13	11	16	12	10	16	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19	18	18	18	16	17	17	14	16	15	12	14	13	10	13	11	9	11	10	8
			Exposed	20	20	20	20	20	18	20	20	16	20	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	8	9	7	6	8		
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	12	9	14	11	7	13	9	6	11	8	9	10	7	8
			Exposed	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	14	14	13	14	14	11	14	14	10	14	12	9	14	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	13	18	18	13	18	16	13	16	10	8	15	8	7	13	7	6	11	7	8			
			Exposed	18	18	16	18	17	14	18	15	12	18	14	11	18	12	10	18	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	8	7	7	7	5	
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	20	20	19	20	20	17	19	19	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7	
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
80	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	13	10	14	12	10
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8	14	8	7	13	7	6
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	10	6	11	8	9	10	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	13	13	13	13	13	11	13	13	10	13	12	9	13	11	8	13	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	13	16	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8
			Exposed	16	16	16	16	16	14	16	15	12	16	14	11	16	12	10	16	11	9	16	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	19	19	19	19	19	17	19	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

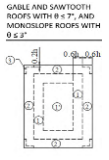
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

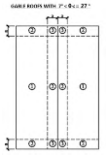
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

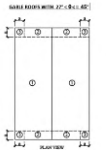
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

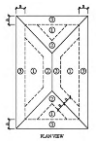












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

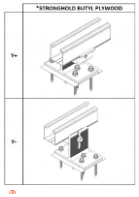
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	6	10	8	9
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	7	10	8	9	10	7	8
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	8	13	8	7	13	7	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	12
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	10	8	10	10	7	10	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	8	13	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	14	14	12	13	13	10	13	11	9	11	10	8	
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	9	6	11	8	9	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	9	7	11	8	9	9	7	8	8	6	6	7	8	6	7	5	
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	9	7	11	8	9	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	11	9	14	10	8	13	8	7	13	7	6	11	7	8
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	12	10	14	11	9	14	10	8	14	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16	16	16	13	15	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
100	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	7	9	8	9	9	7	8
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	8	7	11	7	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	9	6	7	8	9	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	8	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	8	6	11	7	8	10	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	12	13	13	10	12	11	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8			
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	7	10	9	6	10	8	9	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	8	10	9	7	10	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	9	7	8	9	7	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	7	10	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	11	13	12	10	12	11	8	11	9	7	9	8	7
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

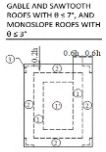
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

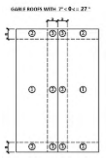
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

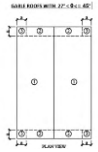
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

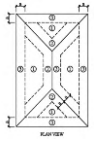












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

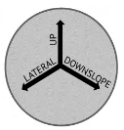
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

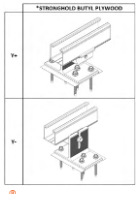
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	78	78	77	78	78	60	78	78	54	78	78	48	78	63	44	78	57	40	78	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	78	63	43	78	56	39	78	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	78	78	59	78	78	53	78	65	47	78	58	42	78	52	38	78	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	78	52	38	65	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	80	80	80	80	80	64	80	80	57	80	63	51	80	57	46	80	51	42	80	47	39	80	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	80	56	46	80	50	41	80	45	37	80	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	62	81	81	56	81	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	81	81	55	81	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	78	68	46	78	59	41	78	53	37	67	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	78	55	40	78	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	80	60	49	80	53	44	80	48	39	80	43	35	75	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	74	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	81	81	59	81	70	52	81	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	78	55	38	73	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	81	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
10	B	0-7	Interior	64	64	64	64	64	60	64	64	54	64	64	48	64	63	44	64	57	40	64	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	64	63	43	64	56	39	64	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	64	64	59	64	64	53	64	64	47	64	58	42	64	52	38	64	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	64	52	38	64	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	64	73	73	57	73	63	51	73	57	46	73	51	42	73	47	39	73	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	73	56	46	73	50	41	73	45	37	73	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	62	78	78	56	78	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	78	78	55	78	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	64	64	46	64	59	41	64	53	37	64	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	64	55	40	64	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	73	60	49	73	53	44	73	48	39	73	43	35	73	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	73	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	78	78	59	78	70	52	78	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	64	55	38	64	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	80	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
20	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	47	36	47	43	30	47	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	47	47	43	47	47	39	47	47	35	47	45	31	47	40	28	47	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	48	48	48	48	48	48	48	48	47	48	48	42	48	48	38	48	48	35	48	43	32	48	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	48	48	38	48	46	34	48	41	30	48	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	58	58	58	58	58	58	58	58	57	58	58	51	58	57	46	58	51	42	58	47	39	58	39	32	58	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	58	56	46	58	50	41	58	45	37	58	40	33	58	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	64	51	64	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	64	64	55	64	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	47	47	46	47	47	41	47	47	37	47	47	33	47	43	30	47	39	27	47	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	47	42	30	47	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	48	48	40	48	48	36	48	44	32	48	39	29	48	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	48	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	58	58	49	58	53	44	58	48	39	58	43	35	58	39	32	58	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	58	38	32	58	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	64	64	59	64	64	52	64	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	47	47	38	47	47	43	30	47	39	27	47	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13		
			Exposed	47	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	48	46	33	48	41	30	48	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	60	49	41	60	44	36	60	39	32	60	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	66	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

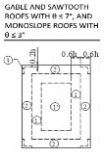
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

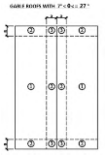
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

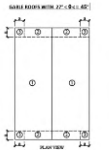
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

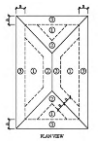












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

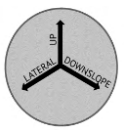
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

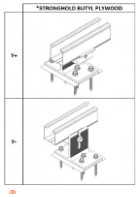
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	30	37	37	26	37	32	22	37	30	28	20	34	24	17	30	22	15
			Exposed	37	37	37	37	37	37	37	37	35	37	37	31	37	37	28	37	37	26	37	37	33	23	37	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	36	27	38	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	38	38	38	38	38	34	38	38	30	38	37	27	38	34	25	38	31	23	38	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	47	39	48	39	32	48	34	28	48	29	24	44	25	21	38	22	18	34	20	16
			Exposed	48	48	46	48	48	41	48	45	37	48	40	33	48	37	30	48	33	27	48	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	46	54	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	54	54	54	54	54	49	54	54	44	54	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	35	25	37	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	37	37	30	37	37	26	37	34	24	37	30	21	37	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	36	26	38	32	24	38	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	38	36	26	38	32	23	38	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	48	48	48	48	48	44	48	48	39	48	43	35	48	39	32	48	35	29	48	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	48	38	32	48	34	28	48	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	54	54	54	54	54	52	54	54	47	54	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	50	49	41	50	44	36	50	39	32	50	35	29	50	32	26	50	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	50	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	57	57	49	57	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	32	22	35	28	20	34	24	17	30	22	15
			Exposed	35	35	35	35	35	35	35	35	35	35	35	31	35	35	28	35	35	26	35	35	33	23	35	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	27	35	31	23	35	27	20	32	23	17	28	21	15	25	18	13
			Exposed	35	35	35	35	35	34	35	35	30	35	35	27	35	34	25	35	31	23	35	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	39	32	41	34	28	41	29	24	41	25	21	38	22	18	34	20	16
			Exposed	41	41	41	41	41	41	41	41	37	41	40	33	41	37	30	41	33	27	41	30	25	41	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	39	45	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	47	47	47	47	47	47	47	47	44	47	47	40	47	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	35	35	30	35	35	26	35	34	24	35	30	21	35	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	35	35	35	35	35	35	35	35	32	35	35	29	35	35	26	35	32	24	35	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	35	35	26	35	32	23	35	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	41	41	41	41	41	41	41	41	39	41	41	35	41	39	32	41	35	29	41	32	26	41	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	41	38	32	41	34	28	41	31	25	41	28	23	41	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	42	47	47	47	47	38	46	44	35	44	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	47	47	38	47	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	43	43	41	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	43	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	43	32	26	43	28	23	43	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	15	12	11	~~9~~
		27-45	Interior	50	50	49	50	50	43	50	49	39	49	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
50	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	28	20	30	24	17	30	22	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	28	20	30	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23	30	27	20	30	23	17	28	21	15	25	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	23	30	30	28	21	30	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	34	28	35	29	24	35	25	21	34	22	18	33	20	16
			Exposed	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	33	27	35	30	25	35	26	21	35	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	40	40	33	38	36	29	35	32	25	31	28	22	28	25	20
			Exposed	41	41	41	41	41	41	41	41	41	41	41	40	41	41	36	41	41	33	41	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	21	30	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	30	30	30	30	30	26	30	30	24	30	30	21	30	28	19	30	25	18	30	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	30	22	30	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	30	30	26	30	30	23	30	28	21	30	26	19	30	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	32	26	35	27	22	35	23	19	33	20	16	30	17	14	26	15	13	23	14	11
			Exposed	35	35	32	35	34	28	35	31	25	35	28	23	35	25	21	35	23	19	35	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	35	39	39	32	37	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	41	41	38	41	41	34	41	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	32	32	32	32	32	32	32	32	32	32	32	27	32	32	25	32	32	23	32	29	21	32	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	32	32	25	32	32	22	32	28	20	32	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	24	33	30	22	33	27	20	33	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	33	29	22	33	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	38	38	38	38	38	36	38	38	32	38	35	29	38	32	26	38	29	24	38	27	22	37	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	38	32	26	38	28	23	38	26	21	38	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	44	44	44	44	44	43	44	44	39	43	43	35	42	40	32	40	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	44	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

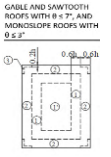
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

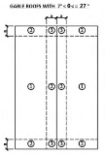
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

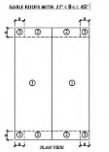
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

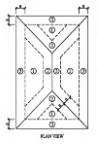












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

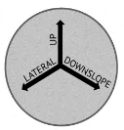
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

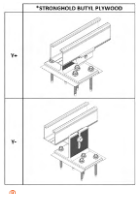
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	24	17	25	22	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	24	17	25	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	23	17	25	21	15	25	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	17	25	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	24	31	31	25	21	31	22	18	30	20	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	30	25	31	26	21	31	22	18	31	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	33	34	34	29	33	32	25	31	28	22	28	25	20
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	19	25	22	15	23	17	12	21	15	10
			Exposed	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	25	18	25	25	16	25	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	18	25	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	21	16	25	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	27	22	31	23	19	30	20	16	29	17	14	26	15	13	23	14	11
			Exposed	31	31	31	31	31	28	31	31	25	31	28	23	31	25	21	31	23	19	31	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	35	35	35	32	34	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	37	37	37	37	37	34	37	37	30	37	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	28	28	23	28	28	21	28	25	17	28	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	28	28	25	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	12	13	9
		7-20	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	27	20	28	25	18	28	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	28	28	22	28	26	19	28	24	17	28	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	32	26	33	29	24	33	27	22	33	22	19	32	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	33	32	26	33	28	23	33	26	21	33	23	19	33	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	35	38	38	32	37	37	29	35	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	39	39	32	39	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
70	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	15
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	22	18
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	26	21	27	22	18	27	19	16	27	16	14	25	14	12	22	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	31	29	30	30	25	32	32	25	29	28	22
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	22	22	22	19	22	22	17	22	21	15	22	18	10
			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	19	14	22	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	16	22	18	14	22	22	16	12	19	14	10	17	13	14
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	21	16	22	22	19	14	22	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	22	19	26	19	16	25	17	14	24	14	12	22	13	10	19	11	14	12	14	11
			Exposed	26	26	26	26	26	23	26	26	21	26	23	19	26	21	17	26	19	16	26	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	33	33	33	33	33	33	33	33	32	32	32	31	31	31	31	31	31	29	30	30	26	28	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	33	33	32	33	33	28	33	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	13	19	16	11	19	14	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18	24	20	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	25	27	27	22	25	25	20
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	13	19	17	12	19	15	10
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	16	12	19	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	14	19	16	12	19	14	10	17	13	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	17	19	19	19	19	19	16	19	19	14	19	19	16	19	12	13	14	10	12	13	14	10	11	12	9			
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	20	16	24	17	14	23	15	13	22	14	11
			Exposed	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	21	17	24	18	15	24	15	12	22	13	11	19	11	14	17	10	13	15	13	11			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	27	27	27	23	26	25	20	24	22	17	22	19	15	19	17	14
			Exposed	30	30	30	30	30	30	30	30	27	30	30	25	30	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13			
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	13	21	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	15	21	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	18	13	21	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	22	19	26	19	16	25	17	14	24	14	12	22	13	10	19	11	14	12	14	11
			Exposed	26	26	26	26	26	23	26	26	21	26	23	19	26	21	17	26	19	16	26	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	33	33	33	33	33	33	33	33	32	32	32	31	31	31	31	31	31	29	30	30	26	28	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	33	33	32	33	33	28	33	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

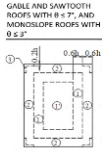
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

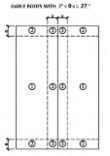
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

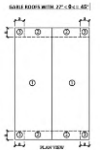
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

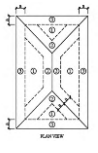












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

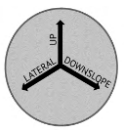
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

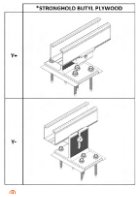
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	34	39	39	30	39	39	27	39	35	24	39	31	22	39	28	20	36	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	39	31	21	39	27	19	34	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	39	39	29	39	36	26	39	32	23	39	29	21	37	26	19	33	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	37	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	40	40	36	40	40	32	40	35	28	40	31	25	40	28	23	40	25	21	40	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	40	28	23	40	25	20	40	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	41	41	41	41	41	40	41	41	34	41	41	31	41	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	41	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	39	33	23	39	29	20	37	26	18	33	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	39	27	20	34	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	40	30	24	40	26	22	40	24	19	38	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	41	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	6	8	6	6
	D	0-7	Interior	39	27	19	34	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	40	24	20	40	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
10	B	0-7	Interior	32	32	32	32	32	30	32	32	27	32	32	24	32	31	22	32	28	20	32	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	32	31	21	32	27	19	32	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	32	32	29	32	32	26	32	32	23	32	29	21	32	26	19	32	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	32	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	37	37	36	37	37	32	37	35	28	37	31	25	37	28	23	37	25	21	37	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	37	28	23	37	25	20	37	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	39	39	39	39	39	39	39	39	34	39	39	31	39	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	39	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	32	32	23	32	29	20	32	26	18	32	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	32	27	20	32	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	37	30	24	37	26	22	37	24	19	37	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	39	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	32	27	19	32	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	38	24	20	38	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
20	B	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	23	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	17	24	21	16	24	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	24	24	19	24	23	17	24	20	15	24	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	29	28	23	29	25	20	29	22	18	29	20	16	29	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	32	32	27	32	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	23	23	23	23	23	20	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	23	21	15	23	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	8	7	5
		7-20	Interior	24	24	20	24	24	18	24	22	16	24	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	29	29	24	29	26	22	29	24	19	29	21	17	29	19	16	29	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	29	19	16	29	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	32	32	29	32	32	26	32	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	23	23	19	23	23	17	23	21	15	23	19	13	23	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	24	23	16	24	20	15	24	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	30	24	20	30	22	18	30	19	16	30	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

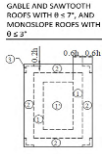
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

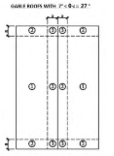
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

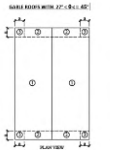
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

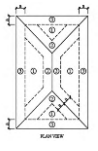












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

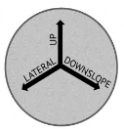
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

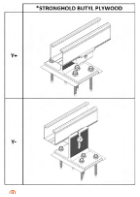
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	18	13	19	16	11	19	14	10	17	12	8	15	11	7
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	18	13	19	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	18	13	19	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	19	19	19	19	19	17	19	19	15	19	18	13	19	17	12	19	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	19	16	24	17	14	24	14	12	22	12	10	19	11	9	17	10	8
			Exposed	24	24	23	24	24	20	24	22	18	24	20	16	24	18	15	24	16	13	24	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	27	27	27	27	27	24	27	27	22	27	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	19	13	19	17	12	19	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	19	19	19	19	19	18	19	19	16	19	19	14	19	18	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	19	18	13	19	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	24	24	24	24	24	22	24	24	19	24	21	17	24	19	16	24	17	14	24	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	24	19	16	24	17	14	24	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	27	27	27	27	27	26	27	27	23	27	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	19	19	19	19	19	17	19	19	15	19	19	13	19	17	12	19	16	11	19	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	19	17	12	19	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	9	6	6	8	5	8	6	4	7	5	4
		20-27	Interior	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	25	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	7	6	8	7	5	6	5	4
		27-45	Interior	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
40	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	10	17	12	8	15	11	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	17	11	17	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	15	11	17	13	10	16	11	8	14	10	7	12	9	6
			Exposed	17	17	17	17	17	17	17	17	17	17	17	13	17	17	12	17	15	11	17	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	16	20	17	14	20	14	12	20	12	10	19	11	9	17	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	15	20	16	13	20	15	12	20	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	22	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	17	17	15	17	17	13	17	17	12	17	15	10	17	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	17	17	13	17	17	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4	7	5	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	18	18	18	18	18	17	18	18	15	18	18	13	18	17	12	18	16	11	18	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	21	16	13	21	14	11	21	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	7	6	8	7	5	6	5	4
		27-45	Interior	25	25	24	25	25	21	25	24	19	24	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
50	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	8	15	11	7			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	12	9	6	11	8	8	9	7	7			
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	10	15	11	8	14	10	7			
			Exposed	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	14	10	15	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6			
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	14	12	17	12	10	17	11	9			
			Exposed	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	16	17	17	13	17	17	12	17	13	10	17	11	9	16	9	8	14	8	7	12	7	6			
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	16	19	18	14	18	16	12	15	14	11			
			Exposed	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6			
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	10	15	12	9	15	11	7	13	9	6	11	8	9			
			Exposed	15	15	15	15	15	13	15	15	12	15	15	10	15	14	9	15	12	9	15	11	8	13	9	7	11	8	8	9	10	7	7	8	6	6	7	8	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	15	15	13	15	15	11	15	14	10	15	13	9	15	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	6	7	5	8	6	4	7	5	4	
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	13	11	17	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	17	17	16	17	17	14	17	15	12	17	14	11	17	12	10	17	11	9	17	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	17	20	20	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	16	11	16	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	16	15	11	16	15	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	19	19	19	19	19	18	19	19	16	19	17	14	19	16	13	19	14	12	19	13	11	18	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	19	16	13	19	14	11	19	13	10	19	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	22	22	22	22	22	21	22	22	19	21	21	17	21	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

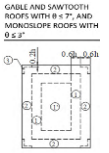
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

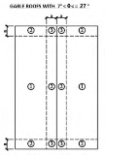
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

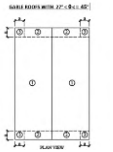
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

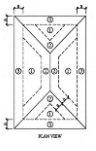












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

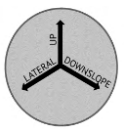
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

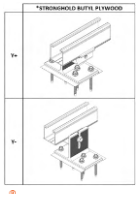
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	8	12	11	7						
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	8	13	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	12	15	12	10	15	11	9	15	10	8		
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	10	15	11	9	15	9	8	14	8	7	12	7	6	11	6	8			
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	14	16	16	12	15	14	11	14	12	10			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6			
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	10	6	11	8	9	10	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	13	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	8	6	7	6	7	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8			
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6			
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7			
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	8			
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	14	14	12	14	14	11	14	14	10	14	12	9	14	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	14	14	11	14	13	9	14	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	13	11	16	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	17	16	13	17	14	11	17	13	10	17	11	9	17	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	12	7	6	11	6	8	7	6	5
		27-45	Interior	20	20	20	20	20	20	20	20	19	19	19	17	19	19	16	18	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5
			Exposed	20	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
70	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	11	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	11	8	8	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	11	9	13	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	13	9	8	13	8	7	12	7	6	11	6	8
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	12	14	14	11	14	12	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	10	6	11	8	9	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	8	11	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	9	11	11	7	11	8	6	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	13	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	14	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	10	7	12	9	6	11	8	8	9	7	7
			Exposed	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	12	12	11	12	12	9	12	12	8	12	10	8	12	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	13	11	15	11	9	14	8	8	12	7	6	11	6	8	9	8	7			
			Exposed	15	15	13	15	14	11	15	13	10	15	11	9	15	10	8	15	9	8	15	8	7	12	7	6	11	6	8	9	8	7	12	7	6	11	6	8	7	6	4
		27-45	Interior	18	18	18	18	18	18	18	18	18	17	17	17	17	17	16	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5
			Exposed	18	18	16	18	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
80	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	12	10	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	12	9	8	12	8	7	12	7	6	11	6	8
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	12	13	13	11	13	12	10	
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	8	8	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	8	6	6	7	8	5	8	6	4	7	5	
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	10	8	12	8	7	11	7	8			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	12	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	13	13	13	11	13	12	10	12	11	8	11	9	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6	10	7	8	9	6	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	8	6	9	7	8	8	6	7
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	12	8	13	9	7	12	8	9	10	7	8
			Exposed	13	13	13	13	13	11	13	13	10	13	13	9	13	12	8	13	12	8	13	11	7	12	10	7	11	10	6	10	9	6	10	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	11	15	15	10	14	14	11	14	12	10			
			Exposed	16	16	16	16	16	14	16	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

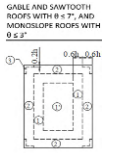
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

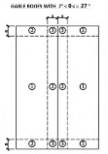
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

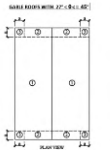
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

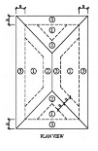












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

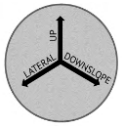
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

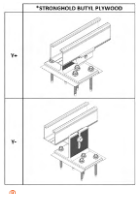
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	6	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	6	10	6	8
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	11	12	12	10	12	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	11	10	8	10	9	7	9	8	6	9	8	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	9	8	7	7	8	6	6	7	8	6	8	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	7	6	10	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	8	11	9	7	9	8	7	9	8	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6	8	7	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	8	9	7	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	7	8	9	6	7	8	9	6	7	8	6
			Exposed	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	9	8	11	8	7	11	7	6	11	6	8	9	8	7
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	11	9	12	12	8	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	13	13	13	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
100	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	8	8	6	7	8	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	8
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	7	8	7	7	8
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	7	7	7	6	6	7	8	6	8	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	8	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	10	10	10	8	10	9	7	9	8	7
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6	8	7	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	8	8	7	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	7	6	8	9	6	7	8	5	6	7	5	8	6	4	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	7	8	6	7	8	6	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	6	10	6	8	9	8	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	8	10	8	7	10	7	6	10	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

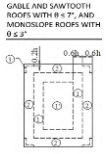
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

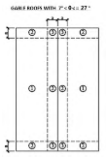
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

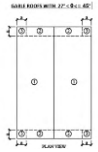
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

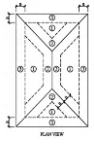












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

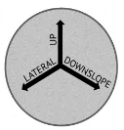
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

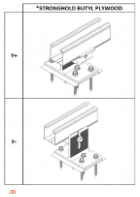
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	76	76	71	76	76	59	76	76	53	76	74	47	76	62	43	76	56	39	76	51	35	59	43	30	43	31	22	38	27	19	30	36	25	43	31	22	38	27	19
			Exposed	76	61	43	76	54	38	73	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	77	77	58	77	77	52	77	63	46	77	57	41	77	51	37	65	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	77	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	78	78	78	78	78	63	78	78	56	78	61	50	78	55	45	78	50	41	78	46	38	75	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	78	55	45	78	49	40	78	44	36	78	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	79	79	79	79	79	79	79	79	77	79	79	60	79	79	54	79	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	79	79	54	79	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	76	65	45	76	58	40	76	51	36	65	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	77	54	40	77	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	78	59	48	78	52	43	78	46	38	78	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	79	79	57	79	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	76	53	37	69	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	62	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	9
		20-27	Interior	78	48	40	78	43	35	74	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	79	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
10	B	0-7	Interior	62	62	62	62	62	59	62	62	53	62	62	47	62	62	43	62	56	39	62	51	35	59	43	30	50	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	62	61	43	62	54	38	62	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	63	63	58	63	63	52	63	63	46	63	57	41	63	51	37	63	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	63	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	71	71	71	71	71	63	71	71	56	71	61	50	71	55	45	71	50	41	71	46	38	71	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	71	55	45	71	49	40	71	44	36	71	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	60	77	77	54	77	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	77	77	54	77	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	62	62	45	62	58	40	62	51	36	62	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	63	54	40	63	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	71	59	48	71	52	43	71	46	38	71	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	77	77	57	77	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	62	53	37	62	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	62	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	9
		20-27	Interior	73	48	40	73	43	35	73	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	78	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
20	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	46	35	46	43	30	46	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	46	46	43	46	46	38	46	46	34	46	44	30	46	39	28	46	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	46	46	34	46	42	31	46	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	46	46	37	46	45	33	46	41	30	46	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	50	56	55	45	56	50	41	56	46	38	56	39	32	56	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	56	55	45	56	49	40	56	44	36	56	39	32	56	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	60	63	63	54	63	63	49	63	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	63	63	54	63	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	46	46	45	46	46	40	46	46	36	46	46	32	46	42	29	46	38	27	46	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	46	42	29	46	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	46	46	40	46	46	35	46	43	31	46	39	28	46	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	46	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	56	56	48	56	52	43	56	46	38	56	42	34	56	38	31	56	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	56	38	31	56	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	63	63	57	63	63	51	63	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	46	46	37	46	46	33	46	42	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	46	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	46	45	33	46	40	29	46	36	26	44	32	24	40	29	21	34	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	9
		20-27	Interior	59	48	40	59	43	35	59	38	32	59	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	65	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

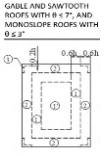
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

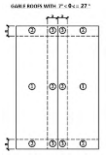
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

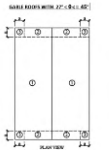
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

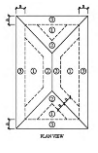












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

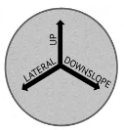
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

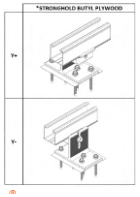
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	36	25	37	31	22	37	27	19	33	24	17	29	21	15
			Exposed	37	37	37	37	37	37	37	37	34	37	37	30	37	37	28	37	36	25	37	33	23	37	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	36	26	37	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	37	37	37	37	37	33	37	37	30	37	36	27	37	33	24	37	30	22	37	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	46	38	47	39	32	47	28	23	43	25	20	38	22	18	33	19	16			
			Exposed	47	47	45	47	47	40	47	44	36	47	39	32	47	36	29	47	32	27	47	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	45	53	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	53	53	53	53	53	48	53	53	43	53	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	32	37	37	29	37	37	27	37	35	24	37	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	37	37	29	37	37	26	37	33	23	37	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	37	37	37	37	37	35	37	37	31	37	37	28	37	35	26	37	32	23	37	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	37	35	26	37	31	23	37	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	47	47	47	47	47	43	47	46	38	47	42	34	47	38	31	47	34	28	47	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	47	38	31	47	34	28	47	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	53	53	53	53	53	51	53	53	46	53	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	33	37	37	30	37	37	27	37	35	24	37	31	22	37	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	37	34	24	37	31	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	49	48	40	49	43	35	49	38	32	49	35	29	49	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	49	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	55	55	48	55	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
40	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	25	34	31	22	34	27	19	33	24	17	29	21	15
			Exposed	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	33	23	34	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	26	34	30	22	34	26	19	31	23	17	28	20	15	24	18	13
			Exposed	34	34	34	34	34	33	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	39	32	40	33	27	40	28	23	40	25	20	38	22	18	33	19	16
			Exposed	40	40	40	40	40	40	40	40	36	40	39	32	40	36	29	40	32	27	40	30	24	40	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	38	44	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	46	46	46	46	46	46	46	46	43	46	46	39	46	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	34	24	34	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	34	34	29	34	34	26	34	33	23	34	30	21	34	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	34	26	34	32	23	34	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	34	34	26	34	31	23	34	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	40	40	40	40	40	40	40	40	38	40	40	34	40	38	31	40	34	28	40	31	26	40	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	40	38	31	40	34	28	40	30	25	40	27	22	40	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	45	43	34	43	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	46	46	37	46	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	27	36	35	24	36	31	22	36	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	36	34	24	36	31	21	36	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	42	42	40	42	42	35	42	38	32	42	35	29	42	31	26	42	29	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	42	31	26	42	28	23	42	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	48	48	48	48	48	42	48	48	38	47	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
50	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	27	19	29	24	17	29	21	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	27	19	29	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	23	17	28	20	15	24	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	22	30	27	20	30	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	33	27	34	28	23	34	25	20	34	22	18	33	19	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	27	34	30	24	34	25	21	34	24	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	39	39	33	37	36	28	35	31	25	31	27	22	27	24	19
			Exposed	40	40	40	40	40	40	40	40	40	40	40	39	40	40	35	40	40	32	40	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	29	20	29	25	17	29	21	15	26	19	13	23	16	12	20	15	16
			Exposed	29	29	29	29	29	26	29	29	23	29	29	21	29	27	19	29	24	17	29	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	29	21	30	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14	
			Exposed	30	30	26	30	30	23	30	28	20	30	25	18	30	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	31	26	34	26	22	34	23	19	33	20	16	29	17	14	26	15	12	23	13	11
			Exposed	34	34	31	34	34	28	34	30	25	34	27	22	34	25	20	34	22	18	34	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	34	38	38	31	36	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	40	40	37	40	40	33	40	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	27	31	31	24	31	31	22	31	29	20	31	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	31	31	24	31	31	21	31	27	19	31	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	32	32	32	32	32	29	32	32	26	32	32	24	32	29	21	32	26	19	32	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	32	29	21	32	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	37	37	37	37	37	35	37	37	32	37	35	29	37	31	26	37	29	23	37	26	21	36	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	37	31	26	37	28	23	37	25	21	37	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	43	43	43	43	43	43	43	43	38	42	42	34	41	39	31	39	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	43	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

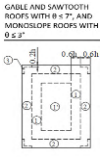
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

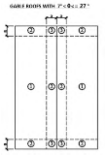
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

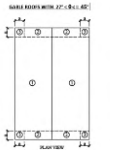
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

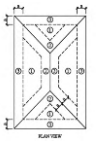












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

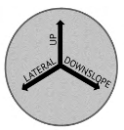
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

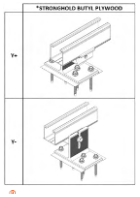
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	24	17	25	21	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	17	25	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	25	23	17	25	20	15	24	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	25	22	25	25	20	25	23	17	25	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	23	30	25	20	30	27	22	29	19	16			
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	30	25	21	30	21	18	30	18	15	28	16	13	24	14	12	22	13	10			
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	33	34	34	28	32	31	25	31	27	22	27	24	19			
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	17	25	21	15	25	19	13	23	16	12	20	15	16
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	22	16	25	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	25	25	25	25	25	23	25	25	20	25	25	18	25	23	17	25	21	15	25	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	26	22	30	23	19	29	20	16	28	17	14	26	15	12	23	13	11
			Exposed	30	30	30	30	30	28	30	30	25	30	27	22	30	25	20	30	22	18	30	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	34	35	35	31	33	33	26	31	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	36	36	36	36	36	36	36	36	36	36	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	28	28	28	28	28	28	28	28	26	28	28	24	28	28	21	28	26	19	28	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	28	28	21	28	26	19	28	23	17	28	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7		
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	31	26	33	29	23	33	26	21	32	22	18	31	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	33	31	26	33	28	23	33	25	21	33	22	19	33	20	17	32	19	15	29	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	14	11	9		
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	34	37	37	31	36	36	28	35	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	38	38	31	38	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11			
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15		
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	20	14	21	19	21	18	12	21	16	11	19	14	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	20	15	22	18	13
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	15	22	18	13	22	18	13
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	25	20	27	22	18	26	19	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	21	18	27	18	15	27	16	13	24	14	12	22	13	10			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	30	30	28	29	29	25	28	27	22	27	24	19			
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12			
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	15	21	19	13	21	16	12	20	15	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	13	21	16	11	19	14	15	17	12	13	15	16	11	13	14	10			
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	21	15	22	22	18	13	22	16	12	19	14	16	17	12	14		
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	21	15	22	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9		
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	23	17	26	20	16	25	17	14	24	15	12	23	13	11			
			Exposed	27	27	27	27	27	25	27	27	22	27	25	20	27	22	18	27	22	17	27	20	17	27	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	26	28	28	22	27	25	19	24	21	17	21	19	15	19	17	13			
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	33	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	17	23	21	15	23	18	13	23	16	11	19	14	15	17	12	13			
			Exposed	23	23	23	23	23	21	23	23	19	23	23	17	23	22	16	23	20	14	23	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8			
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11			
			Exposed	24	24	21	24	24	19	24	23	17	24	21	15	24	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	9	14	10	7			
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	23	29	26	21	29	22	18	28	19	15	27	16	13	24	14	12	21	12	10	19	11	14			
			Exposed	29	29	26	29	28	23	29	25	21	29	22	19	29	20	17	29	19	15	29	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	15	12	11	9			
		27-45	Interior	35	35	35	35	35	35	35	35	35	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11			
			Exposed	35	35	31	35	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11			
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15		
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	22	18	23	19
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	25	26	26	22	25	24	19
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	25	29	27	21	26	23	18	23	20	16	20	18	14	18	16	12			
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
			Exposed	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	22	18	23	20	17	23	17	14	23	15	12	22	13	10	19	11	14	17	15	12	15	13	11			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	27	27	26	26	26	22	25	25	19	24	21	17	21	19	15	19	17	13			
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	29	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13			
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	19	13	21	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8			
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	18	21	20	15	21	17	13	21	15	11	18	13	15	16	11	13	14	16	11	
			Exposed	21	21	21	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7			
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	25	16	13	24	14	12	21	12	10	19	11	14			
			Exposed	26	26	26	26	26	23	26	25	21	26	22	19	26	20	17	26	19	15	26	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	15	12	11	9			
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	30	30	28	29	29	26	28	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11			
			Exposed	32	32	31	32	32	28	32	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11			

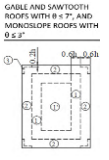
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

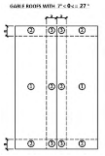
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

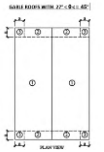
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

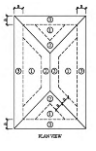












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

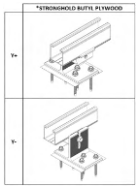
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	16	11	17	14	15
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	12	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	18	15	21	16	13	21	14	12	21	13	10
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	23	18	23	20	16	20	18	14
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	15	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	16	11	17	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	14	16	17	12	14			
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	16	12	17	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	20	17	21	17	14	21	15	12	21	13	10	19	11	14	17	15	12	15	13	11			
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	21	17	21	19	15	19	17	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	16	11	18	14	15	17	12	13		
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	13	18	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8		
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	17	13	19	15	11	18	13	15	16	11	13	14	16	11
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	17	13	19	16	12	18	13	15	16	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	23	19	15	23	16	13	22	14	12	21	12	10	19	11	14
			Exposed	23	23	23	23	23	23	23	23	21	23	22	19	23	20	17	23	19	15	23	17	14	23	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	27	26	26	26	22	25	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	29	29	29	29	29	28	29	29	25	29	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	13	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	12	15	15	11	15	14	15			
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	15	15	15	11	15	15	11	15	13	15	16	12	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	19	14	12	19	13	10
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	22	22	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	16
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15	15	12	13	15	16	11	13	14	10
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	16	15	15	15	14
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	15	15	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	17	14	19	15	12	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	17	14	19	15	12	19	13	10	19	11	14	17	15	12	15	13	11			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	22	22	22	19	21	21	17	20	19	15	19	17	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	12	17	15	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	11	17	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	11	13	14	16	11
			Exposed	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	16	12	17	13	15	16	11	13	13	15	11	12	13	10	10	11	8	14	10	7		
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	16	13	20	14	12	20	12	10	19	11	14			
			Exposed	21	21	21	21	21	21	21	21	21	19	21	20	17	21	19	15	21	17	14	21	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9		
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	20	16	20	18	14	18	16	12	16	14	11
			Exposed	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

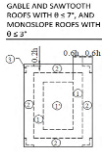
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

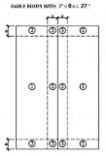
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

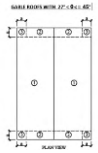
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

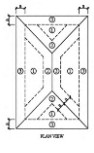












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

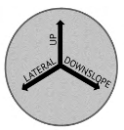
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

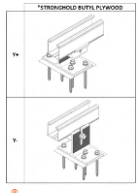
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	40	47	47	36	47	47	32	47	41	29	47	37	26	47	34	23	43	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	47	37	26	47	33	23	41	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	47	47	35	47	44	31	47	38	28	47	34	25	44	31	23	39	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	44	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	48	48	43	48	48	38	48	42	34	48	37	30	48	34	28	48	31	25	48	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	48	33	27	48	30	24	48	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	48	48	48	48	48	48	48	48	41	48	48	37	48	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	48	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	47	39	27	47	35	24	44	31	22	39	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	47	33	24	41	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	8	6	7	7	7	5
		20-27	Interior	48	36	29	48	32	26	48	28	23	46	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	48	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	47	32	23	40	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	41	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	8	6	7	6	8	6
10	B	0-7	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	37	26	38	34	23	38	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	38	37	26	38	33	23	38	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	38	38	35	38	38	31	38	38	28	38	34	25	38	31	23	38	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	38	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	44	44	43	44	44	38	44	42	34	44	37	30	44	34	28	44	31	25	44	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	44	33	27	44	30	24	44	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	47	47	47	47	47	47	47	47	41	47	47	37	47	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	47	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	38	38	27	38	35	24	38	31	22	38	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	38	33	24	38	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	44	36	29	44	32	26	44	28	23	44	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	47	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	38	32	23	38	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	40	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
20	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	18	28	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	28	28	26	28	28	23	28	28	20	28	26	18	28	24	17	28	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	26	19	28	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	28	28	23	28	27	20	28	25	18	28	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	31	25	34	28	23	34	23	19	34	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	34	33	27	34	30	24	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	38	38	38	38	38	38	38	38	38	37	38	33	38	38	30	38	38	30	38	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	38	38	33	38	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	28	28	27	28	28	24	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	12	8	9	10	7	8	9	6	7	8	9	6	7	8	6
		7-20	Interior	28	28	24	28	28	21	28	26	19	28	23	17	28	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	34	34	29	34	32	26	34	28	23	34	25	21	34	23	19	34	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	34	23	19	34	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	38	38	35	38	38	31	38	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	28	28	23	28	28	20	28	26	18	28	23	16	28	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	28	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	28	27	20	28	24	18	28	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	36	29	24	36	26	21	36	23	19	36	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	40	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

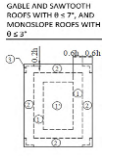
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

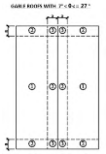
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

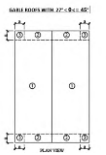
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

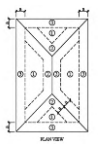












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

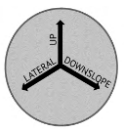
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

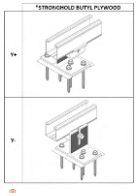
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	15	22	19	13	22	16	11	20	14	10	18	13	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	22	15	22	20	14	22	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	16	23	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	23	23	23	23	23	20	23	23	18	23	22	16	23	20	15	23	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	23	19	28	20	16	28	17	14	26	15	12	23	13	11	20	12	10
			Exposed	28	28	27	28	28	24	28	27	22	28	24	20	28	22	18	28	20	16	28	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	32	32	32	32	32	29	32	32	26	32	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	22	22	18	22	22	16	22	20	14	22	18	13	22	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	28	28	28	28	28	26	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	28	23	19	28	20	17	28	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	23	23	20	23	23	18	23	22	16	23	19	14	23	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	23	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	30	29	24	30	26	21	30	23	19	30	21	17	30	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	30	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	8	7	6	7	7	5
		27-45	Interior	34	34	29	34	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
40	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	13	21	16	11	20	14	10	18	13	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	20	14	21	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	18	13	21	16	12	19	14	10	17	12	9	15	11	8
			Exposed	21	21	21	21	21	20	21	21	18	21	21	16	21	20	15	21	18	13	21	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	23	19	24	20	16	24	17	14	24	15	12	23	13	11	20	12	10
			Exposed	24	24	24	24	24	24	24	24	22	24	24	20	24	22	18	24	20	16	24	18	15	24	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	23	27	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	28	28	28	28	28	28	28	28	26	28	28	24	28	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	14	21	18	13	21	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	19	14	21	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	21	21	15	21	19	14	21	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	19	16	24	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	24	23	19	24	20	17	24	18	15	24	16	13	24	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	27	26	21	26	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	28	28	23	28	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	16	22	22	18	22	22	16	22	22	17	22	20	15	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	22	22	20	22	22	18	22	22	16	22	19	14	22	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	22	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	26	26	24	26	26	21	26	26	19	26	21	17	26	19	16	26	17	14	26	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	7	6	11	7	8
			Exposed	26	19	16	26	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	30	30	29	30	30	26	30	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
50	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	18	13	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	17	12	18	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	18	16	18	18	13	18	16	12	18	14	10	17	12	9	15	11	8
			Exposed	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	18	13	18	17	12	18	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11	20	12	10
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	18	15	21	19	15	18	16	12	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	20	23	22	17	21	19	15	18	16	13	16	15	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	12	18	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	18	18	18	18	18	16	18	18	14	18	18	13	18	16	11	18	15	10	18	13	9	16	11	8	12	8	9	10	7	8	9	6	7	8	9	6	7	8	6
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	18	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	18	18	15	18	18	14	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	16	13	21	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	21	21	19	21	20	17	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	21	23	23	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	25	25	23	25	25	20	25	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	18	13	19	17	12	19	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	14	19	17	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	19	17	13	19	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	22	22	22	22	22	21	22	22	19	22	21	17	22	22	16	22	17	14	22	16	13	22	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	22	19	16	22	17	14	22	15	12	22	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	26	26	26	26	26	26	26	26	23	26	26	21	25	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	26	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

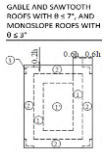
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

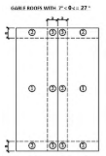
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

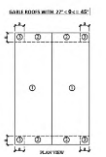
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

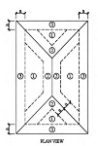












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

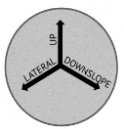
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

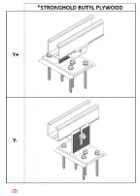
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	14	10	15	13	9			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	15	11	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	18	13	11	18	12	10			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	19	15	12	19	13	11	19	11	9	17	10	8	15	8	7	13	7	6			
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	20	20	20	17	19	19	15	18	16	13	16	15	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7			
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	13	9	15	11	8	14	10	7	12	9	6		
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	15	11	15	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	13	10	7	11	8	6	10	7	8	8	6	7	8	6	7	7	8	5
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	16	19	16	13	18	14	11	18	12	10	17	10	8	16	9	7	14	8	6
			Exposed	19	19	19	19	19	17	19	18	15	19	16	13	19	15	12	19	13	11	19	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	19	20	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8			
			Exposed	22	22	22	22	22	20	22	22	18	22	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8		
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	10	16	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	16	16	15	16	16	13	16	16	12	16	15	10	16	13	9	16	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	17	17	13	17	16	11	17	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	19	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	7	6	7	7	7	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	22	22	19	22	22	17	21	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
70	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	13	13	11	7	13	9	6	11	8	9
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	10	7	12	9	7	12	9	7	11	8	9
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	11	16	12	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	12	16	13	11	16	11	9	16	10	8	15	8	7	13	7	6			
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	17	18	18	15	17	16	13	16	15	12
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	18	20	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	11	8	13	10	7	12	9	6		
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	9	7	11	8	6	10	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	14	11	16	12	10	15	10	8	14	9	7	11	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	16	13	11	16	12	10	16	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	16	18	18	16	17	17	14	16	15	12	14	13	10	13	11	9	11	10	8			
			Exposed	20	20	20	20	20	18	20	20	16	20	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	8	7	9	7	6	8
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	10	14	12	9	14	11	7	13	9	6	11	8	9	10	7	8
			Exposed	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	14	14	13	14	14	11	14	14	10	14	12	9	14	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	17	14	18	16	13	18	13	11	17	11	9	16	10	8	15	8	7	13	7	6	11	7	8
			Exposed	18	18	16	18	17	14	18	15	12	18	14	11	18	12	10	18	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	7	6	7	7	7	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	20	20	19	20	20	17	19	19	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7	
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
80	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	8	9
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	9
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	16	16	13	15	15	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7		
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	7	11	9	6		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	9
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	16	16	13	15	15	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7		
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	9	6	11	8	9	10	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	13	13	13	13	13	11	13	13	10	13	12	9	13	11	8	13	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8
			Exposed	16	16	16	16	16	14	16	15	12	16	14	11	16	12	10	16	11	9	16	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7		
			Exposed	19	19	19	19	19	17	19	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

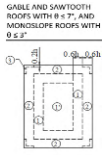
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

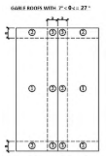
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

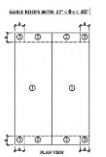
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

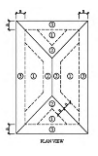












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

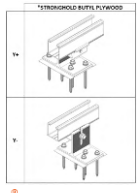
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	6	10	8	9
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	7	10	8	9	10	7	8
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	8	13	8	7	13	7	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	12
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	10	8	10	10	7	9	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	8	13	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	14	14	12	13	13	10	13	11	9	11	10	8	
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8		
	D	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	9	6	11	8	9	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	9	9	7	8	8	6	6	7	8	6	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	9	7	11	8	9	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	11	9	14	10	8	13	8	7	13	7	6	11	7	8	
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	12	10	14	11	9	14	10	8	14	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16	16	16	13	15	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
100	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	7	9	8	9	9	7	8
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	8	7	11	7	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	9	6	7	8	9	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	8	6	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	8	6	11	7	8	10	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8			
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	7	10	9	6	10	8	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	8	10	9	7	10	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	9	7	8	8	6	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	7	10	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	11	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	11	13	12	10	12	11	8	11	9	7	9	8	7
			Exposed	16	16	16	16	16	15	16	16	13	16	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6			

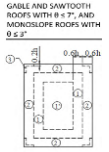
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

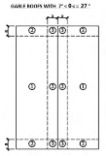
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

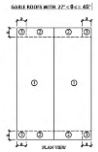
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

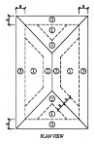












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

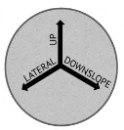
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

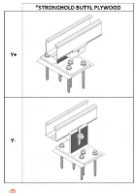
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	78	78	77	78	78	60	78	78	54	78	78	48	78	63	44	78	57	40	78	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	78	63	43	78	56	39	78	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	78	78	59	78	78	53	78	65	47	78	58	42	78	52	38	78	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	78	52	38	65	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	80	80	80	80	80	64	80	80	57	80	63	51	80	57	46	80	51	42	80	47	39	80	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	80	56	46	80	50	41	80	45	37	80	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	62	81	81	56	81	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	81	81	55	81	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	78	68	46	78	59	41	78	53	37	67	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	78	55	40	78	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	80	60	49	80	53	44	80	48	39	80	43	35	75	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	74	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	81	81	59	81	70	52	81	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	78	55	38	73	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	81	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
10	B	0-7	Interior	64	64	64	64	64	60	64	64	54	64	64	48	64	63	44	64	57	40	64	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	64	63	43	64	56	39	64	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	64	64	59	64	64	53	64	64	47	64	58	42	64	52	38	64	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	64	52	38	64	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	64	73	73	57	73	63	51	73	57	46	73	51	42	73	47	39	73	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	73	56	46	73	50	41	73	45	37	73	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	62	78	78	56	78	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	78	78	55	78	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	64	64	46	64	59	41	64	53	37	64	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	64	55	40	64	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	73	60	49	73	53	44	73	48	39	73	43	35	73	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	73	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	78	78	59	78	70	52	78	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	64	64	64	64	64	64	64	64	54	64	64	48	64	63	44	64	57	40	64	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	64	63	43	64	56	39	64	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	64	64	59	64	64	53	64	64	47	64	58	42	64	52	38	64	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	64	52	38	64	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	64	73	73	57	73	63	51	73	57	46	73	51	42	73	47	39	73	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	73	56	46	73	50	41	73	45	37	73	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	62	78	78	56	78	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	78	78	55	78	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	64	64	46	64	59	41	64	53	37	64	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	64	55	38	64	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		20-27	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		27-45	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
	D	0-7	Interior	64	64	64	64	64	64	64	64	54	64	64	48	64	63	44	64	57	40	64	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	64	63	43	64	56	39	64	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	64	64	59	64	64	53	64	64	47	64	58	42	64	52	38	64	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	64	52	38	64	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	64	73	73	57	73	63	51	73	57	46	73	51	42	73	47	39	73	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	73	56	46	73	50	41	73	45	37	73	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	62	78	78	56	78	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	78	78	55	78	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
20	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	47	36	47	43	30	47	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	47	47	43	47	47	39	47	47	35	47	45	31	47	40	28	47	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	48	48	48	48	48	48	48	48	47	48	48	42	48	48	38	48	48	35	48	43	32	48	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	48	48	38	48	46	34	48	41	30	48	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	58	58	58	58	58	58	58	58	57	58	58	51	58	57	46	58	51	42	58	47	39	58	39	32	58	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	58	56	46	58	50	41	58	45	37	58	40	33	58	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	64	51	64	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	64	64	55	64	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	47	47	46	47	47	41	47	47	37	47	47	33	47	43	30	47	39	27	47	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	47	42	30	47	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	48	48	40	48	48	36	48	44	32	48	39	29	48	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	48	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	58	58	49	58	53	44	58	48	39	58	43	35	58	39	32	58	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	58	38	32	58	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	64	64	59	64	64	52	64	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	47	47	38	47	47	43	30	47	39	27	47	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13		
			Exposed	47	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	48	46	33	48	41	30	48	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	60	49	41	60	44	36	60	39	32	60	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	66	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

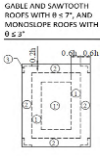
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

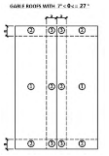
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

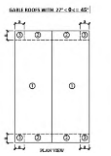
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.











UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

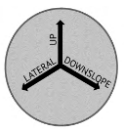
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

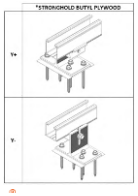
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	30	37	37	32	37	37	28	20	34	24	17	30	22	15
			Exposed	37	37	37	37	37	37	37	37	35	37	37	31	37	37	28	37	37	26	37	37	33	23	37	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	36	27	38	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	38	38	38	38	38	34	38	38	30	38	37	27	38	34	25	38	31	23	38	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	47	39	48	39	32	48	34	28	48	29	24	44	25	21	38	22	18	34	20	16
			Exposed	48	48	46	48	48	41	48	45	37	48	40	33	48	37	30	48	33	27	48	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	46	54	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	54	54	54	54	54	49	54	54	44	54	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	35	25	37	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	37	37	30	37	37	26	37	34	24	37	30	21	37	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	36	26	38	32	24	38	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	38	36	26	38	32	23	38	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	48	48	48	48	48	44	48	48	39	48	43	35	48	39	32	48	35	29	48	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	48	38	32	48	34	28	48	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	54	54	54	54	54	52	54	54	47	54	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	50	49	41	50	44	36	50	39	32	50	35	29	50	32	26	50	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	50	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	57	57	49	57	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	32	22	35	28	20	34	24	17	30	22	15
			Exposed	35	35	35	35	35	35	35	35	35	35	35	31	35	35	28	35	35	26	35	35	33	23	35	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	31	23	35	27	20	32	23	17	28	21	15	25	18	13	20	15	10
			Exposed	35	35	35	35	35	34	35	35	30	35	35	27	35	34	25	35	31	23	35	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	39	32	41	34	28	41	29	24	41	25	21	38	22	18	34	20	16
			Exposed	41	41	41	41	41	41	41	41	37	41	40	33	41	37	30	41	33	27	41	30	25	41	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	45	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	47	47	47	47	47	47	47	47	44	47	47	40	47	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	35	35	30	35	35	26	35	34	24	35	30	21	35	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	35	35	35	35	35	35	35	35	32	35	35	29	35	35	26	35	32	24	35	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	35	35	26	35	32	23	35	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	41	41	41	41	41	41	41	41	39	41	41	35	41	39	32	41	35	29	41	32	26	41	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	41	38	32	41	34	28	41	31	25	41	28	23	41	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	42	47	47	47	47	38	46	44	35	44	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	47	47	38	47	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	43	43	41	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	43	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	43	32	26	43	28	23	43	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	15	12	11	~~9~~
		27-45	Interior	50	50	49	50	50	43	50	49	39	49	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
50	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	28	20	30	24	17	30	22	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	28	20	30	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23	30	27	20	30	23	17	28	21	15	25	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	23	30	30	23	30	28	21	30	24	17	28	20	15	24	17	13	21	15	11	18	13	15
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	34	28	35	29	24	35	25	21	34	22	18	33	20	16
			Exposed	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	33	27	35	30	25	35	26	21	35	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	40	40	33	38	36	29	35	32	25	31	28	22	28	25	20
			Exposed	41	41	41	41	41	41	41	41	41	41	41	40	41	41	36	41	41	33	41	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	21	30	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	30	30	30	30	30	26	30	30	24	30	30	21	30	28	19	30	25	18	30	23	16	27	19	14	23	16	12	20	14	10	17	12	12	13	15	11	12	13	15	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	30	22	30	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	30	30	26	30	30	23	30	28	21	30	26	19	30	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	32	26	35	27	22	35	23	19	33	20	16	30	17	14	26	15	13	23	14	11
			Exposed	35	35	32	35	34	28	35	31	25	35	28	23	35	25	21	35	23	19	35	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	35	39	39	32	37	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	41	41	38	41	41	34	41	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	32	32	32	32	32	32	32	32	32	32	32	27	32	32	25	32	32	23	32	29	21	32	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	32	32	25	32	32	22	32	28	20	32	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	33	33	33	33	33	30	33	33	27	33	33	24	33	30	22	33	27	20	33	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	33	29	22	33	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	38	38	38	38	38	36	38	38	32	38	35	29	38	32	26	38	29	24	38	27	22	37	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	38	32	26	38	28	23	38	26	21	38	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	44	44	44	44	44	43	44	44	39	43	43	35	42	40	32	40	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	44	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

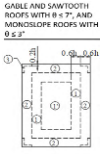
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

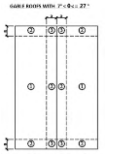
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

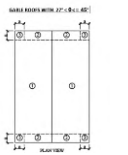
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

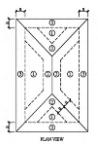












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

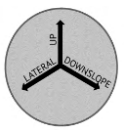
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

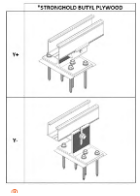
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																										
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	24	17	25	25	22	25	22	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	24	17	25	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	25	23	25	23	17	25	21	15	25	18	13	22	16	11
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	17	25	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	24	31	25	21	31	22	18	30	20	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	30	25	31	26	21	31	22	18	31	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	33	34	34	29	33	32	25	31	28	22	28	25	20
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	19	25	22	15	25	21	15	25	19	13	23	17	12	21	15	10
			Exposed	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	25	18	25	23	16	25	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	18	25	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	21	16	25	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	23	31	23	19	30	20	16	29	17	14	26	15	13	23	14	11
			Exposed	31	31	31	31	31	28	31	31	25	31	28	23	31	25	21	31	23	19	31	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	35	35	35	32	34	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14			
			Exposed	37	37	37	37	37	34	37	37	30	37	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13			
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	28	28	23	28	28	21	28	25	17	28	21	15	25	18	13	22	16	11	19	14	15	17	12	13			
			Exposed	28	28	25	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9			
		7-20	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	27	20	28	25	18	28	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12			
			Exposed	28	28	22	28	26	19	28	24	17	28	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8			
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	32	26	33	29	24	33	27	22	33	22	19	32	19	16	29	17	14	25	14	12	22	13	10	19	11	14			
			Exposed	33	32	26	33	28	23	33	26	21	33	23	19	33	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9			
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	35	38	38	32	37	37	29	35	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11			
			Exposed	39	39	32	39	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11			
70	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	15						
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	14	15			
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	15	22	18	13			
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	15	22	16	13	
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	22	18	27	20	16			
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	26	21	27	22	18	27	19	16	27	16	14	25	14	12	22	13	11			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	29	30	30	25	29	28	22	28	25	20			
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13			
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	15	22	19	13	22	17	12	21	15	10			
			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	19	14	22	16	12	20	14	10	17	12	13	15	11	12	13	15	10			
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	16	22	18	14	22	16	12	19	14	10	17	13	14			
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	21	16	22	22	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9		
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	27	23	27	20	16	26	17	14	25	15	13	23	14	11			
			Exposed	27	27	27	27	27	27	27	27	25	27	27	23	27	25	21	27	23	19	27	21	17	27	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	27	29	29	23	28	25	20	24	22	17	22	19	15	19	17	14				
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	33	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13			
	D	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	17	24	21	15	24	18	13	22	16	11	19	14	15	17	12	13		
			Exposed	24	24	24	24	24	22	24	24	20	24	24	18	24	23	16	24	21	15	24	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9			
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	18	24	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12			
			Exposed	24	24	22	24	24	19	24	24	17	24	21	16	24	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8			
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	30	22	30	22	19	29	19	16	27	17	14	25	14	12	22	13	10	19	11	14			
			Exposed	30	30	26	30	28	23	30	26	21	30	23	19	30	21	17	30	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9			
		27-45	Interior	36	36	36	36	36	36	36	36	36	35	35	34	34	32	33	33	29	32	32	26	31	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11				
			Exposed	36	36	32	36	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11			
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	14	15		
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	13			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	14	15		
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18			
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	14	15		
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	25	27	27	22	25	25	20	
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	13	19	17	12	19	15	10			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	16	12	19	14	10	17	12	13	15	11	12	13	15	10			
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	14	19	16	12	19	14	10	17	13	14			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	19	14	19	19	16	19	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	20	16	24	17	14	23	15	13	22	14	11			
			Exposed	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	21	17	24	18	15	24	15	12	22	13	11	19	11	14	17	10	13	15	13	11			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	27	27	27	23	26	25	20	24	22	17	22	19	15	19	17	14			
			Exposed	30	30	30	30	30	30	30	30	27	30	30	25	30	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13						
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13			
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	13	21	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9			
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	21	21	18	21	21	15	21	18	13	21	15	11	18	13	15	16	12	13			
			Exposed	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	18	13	21	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8			
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	22	19	26	19	16	25	17	14	24	14	12	22	13	10	19	11	14						
			Exposed	26	26	26	26	26	23	26	26	21	26	23	19	26	21	17	26	19	16	26	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9			
		27-45	Interior	33	33	33	33	33	33	33	33	32	32	32	31	31	31	31	31	30	30	26	28	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11					
			Exposed	33	33	32	33	33	28	33	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11			

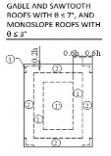
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

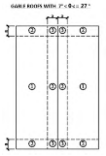
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

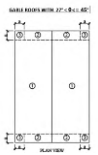
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

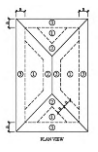












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

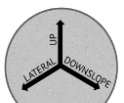
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

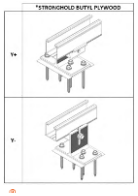
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	34	39	39	30	39	39	27	39	35	24	39	31	22	39	28	20	36	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	39	31	21	39	27	19	34	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	39	39	29	39	36	26	39	32	23	39	29	21	37	26	19	33	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	37	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	40	40	36	40	40	32	40	35	28	40	31	25	40	28	23	40	25	21	40	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	40	28	23	40	25	20	40	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	41	41	41	41	41	40	41	41	34	41	41	31	41	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	41	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	39	33	23	39	29	20	37	26	18	33	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	39	27	20	34	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	40	30	24	40	26	22	40	24	19	38	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	41	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	6	8	6	6
	D	0-7	Interior	39	27	19	34	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	40	24	20	40	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	6	8	7	5
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
10	B	0-7	Interior	32	32	32	32	32	30	32	32	27	32	32	24	32	31	22	32	28	20	32	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	32	31	21	32	27	19	32	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	32	32	29	32	32	26	32	32	23	32	29	21	32	26	19	32	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	32	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	37	37	36	37	37	32	37	35	28	37	31	25	37	28	23	37	25	21	37	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	37	28	23	37	25	20	37	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	39	39	39	39	39	39	39	39	34	39	39	31	39	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	39	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	32	32	23	32	29	20	32	26	18	32	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	32	27	20	32	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	37	30	24	37	26	22	37	24	19	37	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	39	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	32	27	19	32	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	38	24	20	38	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	6	8	7	5
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
20	B	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	23	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	17	24	21	16	24	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	24	24	19	24	23	17	24	20	15	24	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	29	28	23	29	25	20	29	22	18	29	20	16	29	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	32	32	27	32	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	23	23	23	23	23	20	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	23	21	15	23	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	8	7	5
		7-20	Interior	24	24	20	24	24	18	24	22	16	24	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	29	29	24	29	26	22	29	24	19	29	21	17	29	19	16	29	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	29	19	16	29	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	32	32	29	32	32	26	32	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	23	23	19	23	23	17	23	21	15	23	19	13	23	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	24	23	16	24	20	15	24	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	30	24	20	30	22	18	30	19	16	30	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	8	7	5
		27-45	Interior	33	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

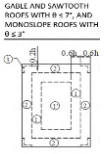
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

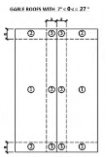
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

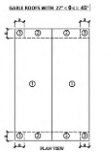
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

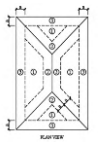












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

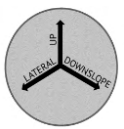
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

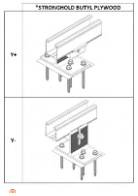
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	18	13	19	16	11	19	15	10	17	12	8	15	11	7
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	18	13	19	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	18	13	19	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	19	19	19	19	19	17	19	19	15	19	18	13	19	17	12	19	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	19	16	24	17	14	24	14	12	22	12	10	19	11	9	17	10	8
			Exposed	24	24	23	24	24	20	24	22	18	24	20	16	24	18	15	24	16	13	24	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	27	27	27	27	27	24	27	27	22	27	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	19	13	19	17	12	19	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	19	19	19	19	19	18	19	19	16	19	19	14	19	18	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	19	18	13	19	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	24	24	24	24	24	22	24	24	19	24	21	17	24	19	16	24	17	14	24	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	24	19	16	24	17	14	24	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	27	27	27	27	27	26	27	27	23	27	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	19	19	19	19	19	17	19	19	15	19	19	13	19	17	12	19	16	11	19	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	19	17	12	19	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	8	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	25	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
40	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	10	17	12	8	15	11	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	17	11	17	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	15	11	17	13	10	16	11	8	14	10	7	12	9	6
			Exposed	17	17	17	17	17	17	17	17	17	17	17	13	17	17	12	17	15	11	17	16	12	17	17	13	17	15	11	17	13	10	16	11	8	14	10	7	12	9	6
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	16	20	17	14	20	14	12	20	12	10	19	11	9	17	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	15	20	16	13	20	15	12	20	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	22	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	17	17	15	17	17	13	17	17	12	17	15	10	17	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	17	17	13	17	17	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4	7	5	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	13	18	17	12	18	16	11	18	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	21	16	13	21	14	11	21	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	25	25	24	25	25	21	25	24	19	24	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
50	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	8	15	11	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	10	15	11	8	14	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	14	10	15	15	12	15	12	8	14	10	7	12	8	6	10	7	8	9	6	6
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	14	12	17	12	10	17	11	9	17	10	8
			Exposed	17	17	17	17	17	17	17	17	16	17	17	16	17	17	15	17	16	13	17	17	12	17	17	13	17	17	10	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	16	19	18	14	18	16	12	15	14	11	14	12	10
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	10	15	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	15	15	15	15	15	13	15	15	12	15	15	10	15	14	9	15	12	9	15	11	8	13	9	7	11	8	8	9	10	7	7	8	6	6	7	8	6	6	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	15	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	15	15	13	15	15	11	15	14	10	15	13	9	15	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	6	7	5	8	6	4	7	5	4	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	13	11	17	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	17	17	16	17	17	14	17	15	12	17	14	11	17	12	10	17	11	9	17	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	17	20	20	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	13	16	16	12	16	16	11	16	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	16	15	11	16	15	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	19	19	19	19	19	18	19	19	16	19	17	14	19	16	13	19	14	12	19	13	11	18	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	19	16	13	19	14	11	19	13	10	19	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	22	22	22	22	22	22	22	22	19	21	21	17	21	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

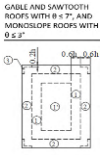
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

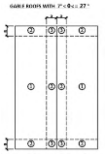
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

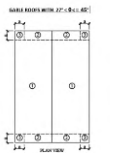
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

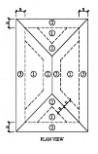












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

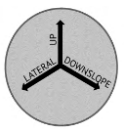
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

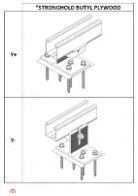
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	8	12	11	7						
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	8	13	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	12	15	12	10	15	11	9	15	10	8			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	10	15	11	9	15	9	8	14	8	7	12	7	6	11	6	8			
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	17	17	14	16	16	12	15	14	11	14	12	10			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6			
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	10	7	12	9	6	11	8	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	9	13	10	8	12	9	7	11	8	6	9	7	8	8	6	7			
			Exposed	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8			
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7			
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	8	7	6	7	6	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	14	14	12	14	14	11	14	14	10	14	12	9	14	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	14	14	11	14	13	9	14	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	13	11	16	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	17	16	13	17	14	11	17	13	10	17	11	9	17	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	10	7	6	9	7	6	8	7	5
		27-45	Interior	20	20	20	20	20	20	20	20	19	19	19	17	19	19	16	18	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5
			Exposed	20	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
70	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	11	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	11	8	8	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	10	7	11	9	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	11	9	13	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	13	9	8	13	8	7	12	7	6	11	6	8
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	15	15	12	14	14	11	14	12	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	10	8						
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	8	11	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	7	11	9	7	11	8	6	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	13	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	14	14	11	14	12	9	11	8	7
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	8
			Exposed	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	12	12	11	12	12	9	12	12	8	12	10	8	12	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	13	11	15	11	9	14	8	7	12	9	6	11	6	8	9	8	7			
			Exposed	15	15	13	15	14	11	15	13	10	15	11	9	15	10	8	15	9	8	15	8	7	12	7	6	11	6	8	9	8	7	12	7	6	11	6	8			
		27-45	Interior	18	18	18	18	18	18	18	18	18	17	17	17	17	17	16	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5
			Exposed	18	18	16	18	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
80	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	12	10	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	8
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	12	13	13	11	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	13	13	11	13	12	9	11	10	8
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7	6
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	10
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	10
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9	7	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	8	7	6	7	8	6	6	7	5	8	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	8	8	6	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	7	8	6	6	7	5	8	6	4	7	5	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	10	8	12	8	7	11	7	8	11	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	12	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	13	13	13	11	13	12	10	12	11	8	11	9	7
			Exposed	15	15	15	15	15	15	15	15	15	13	15	12	15	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6			
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	7	11	9	6	10	7	8	9	6	7	8	6	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	10	7	11	9	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	13	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	13	9	8	13	8	7	12	7	6	11	6	8
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16

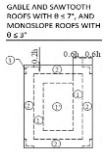
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

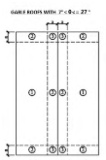
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

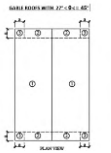
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

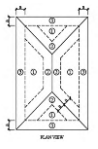












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

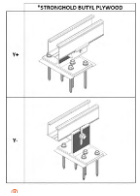
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	6	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	6	10	6	8
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	11	12	12	10	12	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	11	10	8	10	9	7	9	8	6	10	8	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	9	8	7	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	9	8	7	7	8	6	6	7	8	6	8	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	7	8	6	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	8	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	7	6	10	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	8	11	9	7	9	8	7	9	8	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6	7	6	5
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	8	9	7	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4	7	5	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	7	8	9	6	7	8	9	6	7	8	6
			Exposed	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	9	8	11	8	7	11	7	6	11	6	8	9	8	7
			Exposed	12	12	12	12	12	12	12	12	10	12	11	9	12	10	8	12	9	8	12	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	13	13	13	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
100	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	7	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	8	9	8	7
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	9	7	7	8	7	7	8
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	7	7	7	6	6	7	8	6	7	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	7	8	6	8	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	7	6	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	7	6	9	6	8	9	8	7	8	7	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	11	12	12	11	12	12	11	12	12	11	12	12	11	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	8	8	6	8	8	8	8	7	8	6	8	8	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	8	10	8	7	10	7	6	10	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

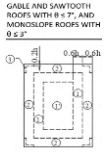
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

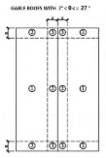
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

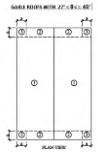
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

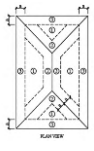












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

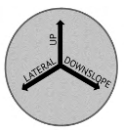
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

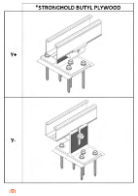
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	76	76	71	76	76	59	76	76	53	76	74	47	76	62	43	76	56	39	76	51	35	59	43	30	43	31	22	38	27	19	30	36	25	43	31	22	38	27	19
			Exposed	76	61	43	76	54	38	73	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	77	77	58	77	77	52	77	63	46	77	57	41	77	51	37	65	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	77	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	78	78	78	78	78	63	78	78	56	78	61	50	78	55	45	78	50	41	78	46	38	75	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	78	55	45	78	49	40	78	44	36	78	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	79	79	79	79	79	79	79	79	77	79	79	60	79	79	54	79	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	79	79	54	79	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	76	65	45	76	58	40	76	51	36	65	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	77	54	40	77	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	78	59	48	78	52	43	78	46	38	78	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	79	79	57	79	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	76	53	37	69	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	62	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	78	48	40	78	43	35	74	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	79	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
10	B	0-7	Interior	62	62	62	62	62	59	62	62	53	62	62	47	62	62	43	62	56	39	62	51	35	59	43	30	50	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	62	61	43	62	54	38	62	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	63	63	58	63	63	52	63	63	46	63	57	41	63	51	37	63	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	63	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	71	71	71	71	71	63	71	71	56	71	61	50	71	55	45	71	50	41	71	46	38	71	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	71	55	45	71	49	40	71	44	36	71	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	60	77	77	54	77	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	77	77	54	77	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	62	62	45	62	58	40	62	51	36	62	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	63	54	40	63	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	71	59	48	71	52	43	71	46	38	71	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	77	77	57	77	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	62	53	37	62	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	62	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	73	48	40	73	43	35	73	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	78	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
20	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	46	35	46	43	30	46	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	46	46	43	46	46	38	46	46	34	46	44	30	46	39	28	46	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	46	46	46	46	46	46	46	46	41	46	46	37	46	46	34	46	42	31	46	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13			
			Exposed	46	46	37	46	45	33	46	41	30	46	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	50	56	55	45	56	50	41	56	46	38	56	39	32	56	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	56	55	45	56	49	40	56	44	36	56	39	32	56	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	60	63	63	54	63	63	49	63	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	63	63	54	63	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	46	46	45	46	46	40	46	46	36	46	46	32	46	42	29	46	38	27	46	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	46	42	29	46	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	46	46	40	46	46	35	46	43	31	46	39	28	46	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	46	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	56	56	48	56	52	43	56	46	38	56	42	34	56	38	31	56	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	56	38	31	56	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	63	63	57	63	63	51	63	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	46	46	37	46	46	33	46	42	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	46	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	46	45	33	46	40	29	46	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	59	48	40	59	43	35	59	38	32	59	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	65	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

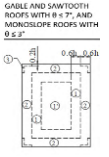
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

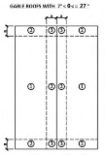
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

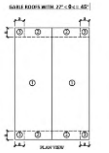
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

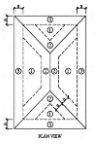












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

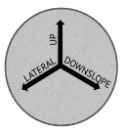
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

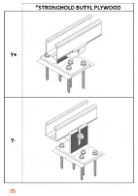
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	36	25	37	31	22	37	27	19	33	24	17	29	21	15
			Exposed	37	37	37	37	37	37	37	37	34	37	37	30	37	37	28	37	36	25	37	33	23	37	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	36	26	37	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	37	37	37	37	37	33	37	37	30	37	36	27	37	33	24	37	30	22	37	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	46	38	47	39	32	47	28	23	43	25	20	38	22	18	33	19	16			
			Exposed	47	47	45	47	47	40	47	44	36	47	39	32	47	36	29	47	32	27	47	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	45	53	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	53	53	53	53	53	48	53	53	43	53	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	32	37	37	29	37	37	27	37	35	24	37	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	37	37	29	37	37	26	37	33	23	37	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	37	37	37	37	37	35	37	37	31	37	37	28	37	35	26	37	32	23	37	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	37	35	26	37	31	23	37	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	47	47	47	47	47	43	47	46	38	47	42	34	47	38	31	47	34	28	47	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	47	38	31	47	34	28	47	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	53	53	53	53	53	51	53	53	46	53	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	33	37	37	30	37	37	27	37	35	24	37	31	22	37	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	37	34	24	37	31	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	49	48	40	49	43	35	49	38	32	49	35	29	49	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	49	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	55	55	48	55	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
40	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	25	34	31	22	34	27	19	33	24	17	29	21	15
			Exposed	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	33	23	34	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	26	34	30	22	34	26	19	31	23	17	28	20	15	24	18	13
			Exposed	34	34	34	34	34	33	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	39	32	40	33	27	40	28	23	40	25	20	38	22	18	33	19	16
			Exposed	40	40	40	40	40	40	40	40	40	40	40	36	40	39	32	40	36	29	40	32	27	40	30	24	40	25	21	37	21	18	32	18	15	28	16	13	24	14	12
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	38	44	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	46	46	46	46	46	46	46	46	43	46	46	39	46	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	34	24	34	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	34	34	29	34	34	26	34	33	23	34	30	21	34	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	34	26	34	32	23	34	32	23	34	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16
			Exposed	34	34	26	34	31	23	34	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	40	40	40	40	40	40	40	40	38	40	40	34	40	38	31	40	34	28	40	31	26	40	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	40	38	31	40	34	28	40	30	25	40	27	22	40	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	45	43	34	43	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	46	46	37	46	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	27	36	35	24	36	31	22	36	29	20	33	24	17	28	21	16	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	36	34	24	36	31	21	36	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	42	42	40	42	42	35	42	38	32	42	35	29	42	31	26	42	29	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	42	31	26	42	28	23	42	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	48	48	48	48	48	42	48	48	38	47	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
50	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	27	19	29	24	17	29	21	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	27	19	29	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	23	17	28	20	15	24	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	22	30	27	20	30	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	33	27	34	28	23	34	25	20	34	22	18	33	19	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	27	34	30	24	34	25	21	34	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	39	39	33	37	36	28	35	31	25	31	27	22	27	24	19
			Exposed	40	40	40	40	40	40	40	40	40	40	40	39	40	40	35	40	40	32	40	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	29	20	29	25	17	29	21	15	26	19	13	23	16	12	20	15	16
			Exposed	29	29	29	29	29	26	29	29	23	29	29	21	29	27	19	29	24	17	29	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	29	21	30	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	30	30	26	30	30	23	30	28	20	30	25	18	30	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	31	26	34	26	22	34	23	19	33	20	16	29	17	14	26	15	12	23	13	11
			Exposed	34	34	31	34	34	28	34	30	25	34	27	22	34	25	20	34	22	18	34	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	34	38	38	31	36	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	40	40	37	40	40	33	40	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	31	31	31	31	31	31	31	31	30	31	31	27	31	31	24	31	31	22	31	29	20	31	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	31	31	24	31	31	21	31	27	19	31	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	32	32	32	32	32	29	32	32	26	32	32	24	32	29	21	32	26	19	32	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	32	29	21	32	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7	
		20-27	Interior	37	37	37	37	37	35	37	37	32	37	35	29	37	31	26	37	29	23	37	26	21	36	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	37	31	26	37	28	23	37	25	21	37	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	43	43	43	43	43	42	43	43	38	42	42	34	41	39	31	39	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	43	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

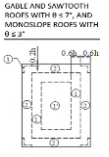
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

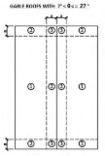
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

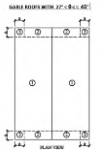
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

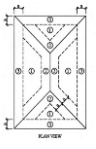












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

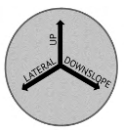
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

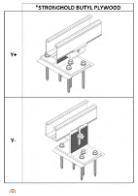
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	24	17	25	21	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	17	25	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	17	25	20	15	24	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	20	15	23	17	13	20	15	11	18	13	15	16	12	13			
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	23	30	25	20	30	27	22	29	19	16			
			Exposed	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	30	25	21	30	21	18	30	18	15	28	16	13	24	14	12	22	13	10			
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	33	34	34	28	32	31	25	31	27	22	27	24	19			
			Exposed	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	17	25	21	15	25	19	13	23	16	12	20	15	16
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	22	16	25	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			Exposed	25	25	25	25	25	25	25	25	20	25	25	18	25	23	17	25	21	15	25	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	25	30	27	22	30	25	20	30	22	18	30	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	34	35	35	31	33	33	26	31	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	36	36	36	36	36	36	36	36	30	36	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	28	28	28	28	28	28	28	28	26	28	28	24	28	28	21	28	26	19	28	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	28	28	21	28	26	19	28	23	17	28	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7		
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	31	26	33	29	23	33	26	21	32	22	18	31	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	33	31	26	33	28	23	33	25	21	33	22	19	33	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	34	37	37	31	36	36	28	35	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	38	38	31	38	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11		
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	20	14	21	18	12	21	16	11	19	14	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	20	15
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	21	18	27	23	18	27	22	18	26	19	16
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	30	30	28	29	29	25	28	27	22	27	24	19
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	15	21	19	13	21	16	12	20	15	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	13	21	16	11	19	14	15	17	12	13	15	16	11	13	14	10			
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	21	15	22	18	13	22	16	12	19	14	16	17	12	14
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	21	15	22	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	26	20	27	23	17	26	22	17	23	19	15	24	13	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	25	20	27	22	18	27	20	17	27	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	26	28	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	33	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	17	23	21	15	23	18	13	21	16	11	19	14	15	17	12	13
			Exposed	23	23	23	23	23	21	23	23	19	23	23	17	23	22	16	23	20	14	23	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	24	24	21	24	24	19	24	23	17	24	21	15	24	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7		
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	23	29	26	21	29	22	18	28	19	15	27	16	13	24	14	12	21	12	10	19	11	14
			Exposed	29	29	26	29	28	23	29	25	21	29	22	19	29	20	17	29	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	35	35	35	35	35	35	35	35	35	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	35	35	31	35	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	11	19	14
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	22	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	25	26	26	22
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	25	29	27	21	26	23	18	23	20	16	20	18
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
			Exposed	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	22	18	23	20	17	23	17	14	23	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	27	27	26	26	26	22	25	25	19	24	21	17	21	19	15	19	17	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	29	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	19	13	21	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	18	13	21	16	12	19	14	15	16	11	13
			Exposed	21	21	21	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7		
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	25	16	13	24	14	12	21	12	10	19	11	14
			Exposed	26	26	26	26	26	23	26	25	21	26	22	19	26	20	17	26	19	15	26	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	30	30	28	29	29	26	28	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	32	32	31	32	32	28	32	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

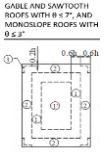
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

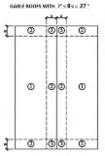
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

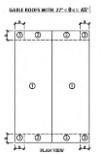
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

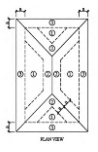












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

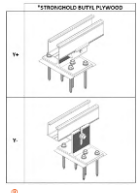
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	16	11	17	14	15
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	12	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	18	15	21	16	13	21	14	12	21	13	10
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	23	18	23	20	16	20	18	14
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	15	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	16	11	17	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	14	16	17	12	14
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	16	12	17	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	20	17	21	17	14	21	15	12	21	13	10	19	11	14	17	15	12	15	13	11			
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	21	17	21	19	15	19	17	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	16	11	18	14	15	17	12	13		
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	13	18	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8		
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	17	13	19	15	11	18	13	15	16	11	13	14	16	11
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	17	13	19	16	12	18	13	15	16	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	23	19	15	23	16	13	22	14	12	21	12	10	19	11	14
			Exposed	23	23	23	23	23	23	23	23	21	23	22	19	23	20	17	23	19	15	23	17	14	23	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	15	11
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	27	26	26	26	22	25	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	29	29	29	29	29	28	29	29	25	29	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	13	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	12	15	15	11	15	14	15			
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	15	15	15	11	15	15	11	15	13	15	16	12	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	19	14	12	19	13	10
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	22	22	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	16
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15	15	12	13	15	16	11	13	14	10
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	14	16	15	12	14
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	15	15	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	17	14	19	15	12	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	17	14	19	15	12	19	13	10	19	11	14	17	15	12	15	13	11			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	22	22	22	19	21	21	17	20	19	15	19	17	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	17	16	11	17	14	15	17	12
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	11	17	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	17	15	16	11	13	14	16	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	16	12	17	13	15	16	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	19	15	21	16	13	20	14	12	20	12	10	19	11	14
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	20	17	21	19	15	21	17	14	21	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	20	16	20	18	14	18	16	12	16	14	11
			Exposed	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

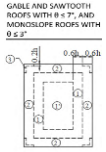
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

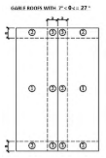
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

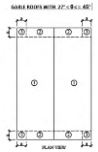
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

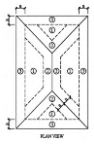












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

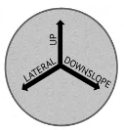
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

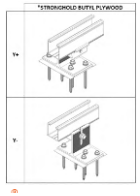
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	40	47	47	36	47	47	32	47	41	29	47	37	26	47	34	23	43	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	47	37	26	47	33	23	41	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	47	47	35	47	44	31	47	38	28	47	34	25	44	31	23	39	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	44	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	48	48	43	48	48	38	48	42	34	48	37	30	48	34	28	48	31	25	48	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	48	33	27	48	30	24	48	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	48	48	48	48	48	48	48	48	41	48	48	37	48	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	48	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	47	39	27	47	35	24	44	31	22	39	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	47	33	24	41	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	8	6	7	7	7	5
		20-27	Interior	48	36	29	48	32	26	48	28	23	46	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	48	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	47	32	23	40	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	48	29	24	48	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	41	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
10	B	0-7	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	37	26	38	34	23	38	31	21	36	26	18	31	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	38	37	26	38	33	23	38	29	20	37	26	18	33	24	17	30	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	38	38	35	38	38	31	38	38	28	38	34	25	38	31	23	38	28	21	36	26	19	30	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	38	31	23	38	27	20	34	25	18	31	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	44	44	43	44	44	38	44	42	34	44	37	30	44	34	28	44	31	25	44	28	23	41	23	19	35	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	44	33	27	44	30	24	44	27	22	42	24	20	38	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	47	47	47	47	47	47	47	47	41	47	47	37	47	42	33	43	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	47	42	33	42	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	38	38	27	38	35	24	38	31	22	38	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	38	33	24	38	29	21	36	26	19	32	23	17	29	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	44	36	29	44	32	26	44	28	23	44	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	40	23	19	35	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	47	46	35	46	39	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	38	32	23	38	29	20	36	26	18	32	23	16	29	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	38	27	20	33	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	45	29	24	45	26	21	41	23	19	37	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	41	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
20	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	18	28	22	15	26	19	13	23	16	11	20	14	10	18	13	9
			Exposed	28	28	26	28	28	23	28	28	20	28	26	18	28	24	17	28	22	15	27	20	14	23	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	26	19	28	22	16	25	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	28	28	23	28	27	20	28	25	18	28	22	16	28	20	15	25	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	31	25	34	28	23	34	23	19	34	20	16	30	17	14	26	15	12	23	13	11	20	12	10
			Exposed	34	33	27	34	30	24	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	38	38	38	38	38	38	38	38	38	37	38	33	38	38	30	38	38	30	38	35	27	33	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	38	38	33	38	37	29	37	33	26	34	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	28	28	27	28	28	24	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	28	25	18	28	22	16	28	20	14	25	18	13	23	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	28	28	24	28	28	21	28	26	19	28	23	17	28	21	15	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	28	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	34	34	29	34	32	26	34	28	23	34	25	21	34	23	19	34	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	34	23	19	34	20	17	32	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	38	38	35	38	38	31	38	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	28	28	23	28	28	20	28	26	18	28	23	16	28	21	15	26	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	28	21	15	26	18	13	23	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	28	27	20	28	24	18	28	22	16	27	19	14	24	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	24	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	36	29	24	36	26	21	36	23	19	36	21	17	33	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	40	37	29	37	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

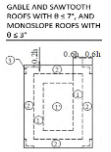
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

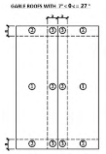
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

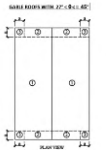
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

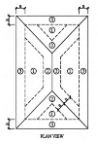












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

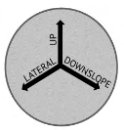
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

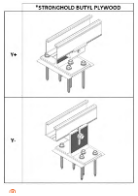
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	15	22	19	13	22	16	11	20	14	10	18	13	9
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	22	15	22	20	14	22	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	16	23	18	13	22	16	12	19	14	10	17	12	9	15	11	8
			Exposed	23	23	23	23	23	20	23	23	18	23	22	16	23	20	15	23	18	13	23	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	23	19	28	20	16	28	17	14	26	15	12	23	13	11	20	12	10
			Exposed	28	28	27	28	28	24	28	27	22	28	24	20	28	22	18	28	20	16	28	18	15	26	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	29	23	28	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	32	32	32	32	32	29	32	32	26	32	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	22	22	18	22	22	16	22	20	14	22	18	13	22	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	23	23	23	23	23	21	23	23	19	23	23	17	23	21	15	23	19	14	23	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	23	21	15	23	19	14	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	5	6	7	8	5
		20-27	Interior	28	28	28	28	28	26	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	28	23	19	28	20	17	28	18	15	28	16	13	26	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	32	29	23	29	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	6	8	6	7	5
		7-20	Interior	23	23	20	23	23	18	23	22	16	23	19	14	23	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	23	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	30	29	24	30	26	21	30	23	19	30	21	17	30	19	16	30	17	14	27	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	30	19	16	29	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	7	8	6	7	7	7	5
		27-45	Interior	34	34	29	34	33	26	33	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
40	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	13	21	16	11	20	14	10	18	13	9
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	17	21	21	15	21	20	14	21	17	12	20	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	18	13	21	16	12	19	14	10	17	12	9	15	11	8
			Exposed	21	21	21	21	21	20	21	21	18	21	21	16	21	20	15	21	18	13	21	17	12	19	14	10	16	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	23	19	24	20	16	24	17	14	24	15	12	23	13	11	20	12	10
			Exposed	24	24	24	24	24	24	24	24	22	24	24	20	24	22	18	24	20	16	24	18	15	24	15	12	22	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	23	27	25	20	24	22	17	21	19	15	18	16	13	16	15	12
			Exposed	28	28	28	28	28	28	28	28	26	28	28	24	28	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	21	21	18	21	21	16	21	20	14	21	18	13	21	16	11	20	15	10	19	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	19	14	21	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	21	21	15	21	19	14	21	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	5	6	7	7	5
		20-27	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	19	16	24	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	24	23	19	24	20	17	24	18	15	24	16	13	24	15	12	23	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	27	26	21	26	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
			Exposed	28	28	23	28	25	20	26	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	16	22	22	17	22	22	15	22	19	13	22	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9
			Exposed	22	21	15	22	18	13	22	17	12	21	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	22	22	20	22	22	18	22	22	16	22	19	14	22	17	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	22	17	13	21	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	26	26	24	26	26	21	26	26	19	26	21	17	26	19	16	26	17	14	26	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	26	19	16	26	17	14	26	15	12	23	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	7	8	7	6	7	7	5
		27-45	Interior	30	30	29	30	30	26	30	29	23	29	26	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	8	6	8	6
50	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	18	13	9
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	14	18	17	12	18	14	10	17	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	13	18	16	12	18	14	10	17	12	9	15	11	8
			Exposed	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	18	17	18	18	14	18	18	10	17	12	9	14	10	7	12	9	7	11	8	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11	20	12	10
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	18	15	21	18	13	18	17	12	21	13	11	19	11	9	17	10	8	15	8	7	13	7	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	20	23	22	17	21	19	15	18	16	13	16	15	12
			Exposed	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	23	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	12	18	15	10	18	13	9	16	11	8	14	10	7	12	9	6
			Exposed	18	18	18	18	18	16	18	18	14	18	18	13	18	16	11	18	15	10	18	13	9	16	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	18	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	18	18	15	18	18	14	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	5	6	7	7	5
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	16	13	21	14	11	20	12	10	18	10	8	16	9	7	14	8	6
			Exposed	21	21	19	21	20	17	21	18	15	21	16	13	21	15	12	21	13	11	21	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	21	23	23	19	22	20	16	19	17	14	17	15	12	15	13	10	13	11	9	11	10	8
			Exposed	25	25	23	25	25	20	25	23	18	23	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	18	13	19	17	12	19	15	10	19	13	9	17	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	14	19	17	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	19	17	13	19	16	11	19	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	22	22	22	22	22	21	22	22	19	22	21	17	22	22	16	22	17	14	22	16	13	22	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	22	19	16	22	17	14	22	15	12	22	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	26	26	26	26	26	26	26	26	23	26	26	21	25	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	26	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

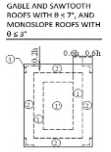
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

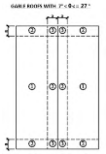
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

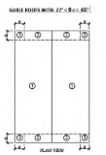
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

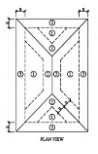












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

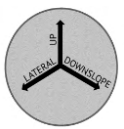
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

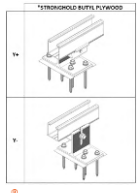
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	11	15	14	10	15	13	9			
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	15	11	7	13	9	6	11	8	9
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	15	11	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	10	15	12	9	14	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	18	13	11	18	12	10			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	15	19	15	12	19	13	11	19	11	9	17	10	8	15	8	7	13	7	6			
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	20	20	20	17	19	19	15	18	16	13	16	15	12
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	21	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7			
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	13	9	15	11	8	14	10	7	12	9	6			
			Exposed	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	15	10	15	13	9	15	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	15	11	15	13	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	15	11	15	14	10	15	12	9	15	11	8	13	10	7	11	8	6	10	7	8	8	6	7	8	6	7	7	8	5
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	16	19	16	13	18	14	11	18	12	10	17	10	8	16	9	7	14	8	6
			Exposed	19	19	19	19	19	17	19	18	15	19	16	13	19	15	12	19	13	11	19	12	10	18	10	8	15	9	7	13	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	19	20	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8			
			Exposed	22	22	22	22	22	20	22	22	18	22	21	16	21	19	15	19	17	13	17	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8		
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	10	16	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	16	16	15	16	16	13	16	16	12	16	15	10	16	13	9	16	12	9	15	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	17	17	13	17	16	11	17	14	10	17	12	9	16	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	19	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	7	8	7	6	7	7	5	
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	22	22	19	22	22	17	21	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
70	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	13	13	11	7	13	9	6	11	8	9
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	12	9	13	10	7	12	9	7	11	8	9	10	7	8
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	15	12	16	13	11	16	12	10
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	12	16	13	11	16	11	9	16	10	8	15	8	7	13	7	6			
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	17	18	18	15	17	16	13	16	15	12
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	18	20	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	11	8	13	10	7	12	9	6			
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	7	12	8	9	10	7	8	9	6	7	8	9	6	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	9	13	11	8	13	9	7	11	8	6	10	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	11	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	14	11	16	12	10	15	10	8	14	9	7	11	7	8
			Exposed	16	14	14	16	15	12	16	14	11	16	12	10	16	11	9	16	12	10	16	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	18	17	14	19	16	12	19	16	13	19	15	12	18	13	11	18	12	10			
			Exposed	19	19	19	19	19	17	19	19	15	19	19	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	12	14	14	10	14	12	9	14	11	7	13	9	6	11	8	9	10	7	8
			Exposed	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	12	9	14	10	8	12	9	7	11	8	9	9	7	8	8	6	7
			Exposed	14	14	13	14	14	11	14	14	10	14	12	9	14	11	8	14	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	17	14	18	16	13	18	13	11	17	11	9	16	10	8	15	8	7	13	7	6	11	7	8
			Exposed	18	18	16	18	17	14	18	15	12	18	14	11	18	12	10	18	11	9	18	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	20	20	19	20	20	17	19	19	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7	
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
80	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9		
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	7	11	11	9	11	8	9
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	7	11	8	9	10	7	8
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8	14	8	7	13	7	6
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	16	16	13	15
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	11	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	12	10
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	10	8	14	8	7	13	7	6
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	15	16	16	13	15
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	10	6	11	8	9	10	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	5	
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	13	9	13	10	8	12	9	7	11	8	9	9	7	8
			Exposed	13	13	13	13	13	11	13	13	10	13	12	9	13	11	8	13	10	8	13	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	16	16	13	16	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8
			Exposed	16	16	16	16	16	14	16	15	12	16	14	11	16	12	10	16	11	9	16	10	8	15	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	19	19	19	19	19	17	19	19	15	19	19	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

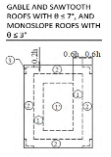
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

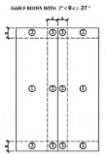
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

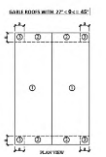
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

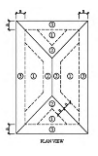












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

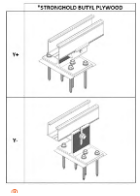
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	6	10	8	9
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	7	10	8	9	10	7	8
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	8	13	8	7	13	7	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	12
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	10	10	10	8	10	10	7	10	9	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	9	10	7	8	9	6	7	8	9	6
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	13	10	13	13	8	13	9	7	13	8	6	11	7	8	10	9	7	8	6
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	14	14	12	13	13	10	13	11	9	11	10	8
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8
	D	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	9	6	11	8	9	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	11	8	11	9	7	11	8	9	10	7	7	8	6	6	7	8	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	9	7	11	8	9	9	7	8	8	6	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	9	9	7	8	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	11	14	11	9	14	10	8	13	8	7	13	7	6	11	7	8	11	7	6
			Exposed	14	14	14	14	14	14	14	14	12	14	14	11	14	12	10	14	11	9	14	10	8	14	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	16	16	16	16	16	13	15	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
100	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	7	9	8	9	9	7	8
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	10	8	11	8	7	11	7	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	12
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	8	9	6	7	8	9	6
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	8	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	8	8	6	7	7	8	6	7	7	5
		20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	8	6	11	7	8	10	9	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	10	8	11	9	7	11	8	6	11	7	8	10	9	7	9	8	6
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	9	7	6	8	7	9	6	8
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	7	10	9	6	10	8	9	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	8	10	9	7	10	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	9	9	7	8	8	6	7
			Exposed	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	8	10	9	7	10	8	9	9	7	8	9	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	9	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	11	13	12	10	12	11	8	11	9	7	9	8	7
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

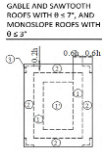
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

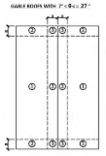
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

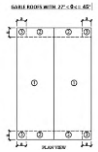
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

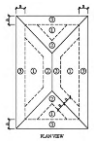












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

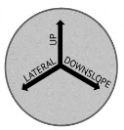
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

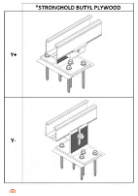
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	78	78	77	78	78	60	78	78	54	78	78	48	78	63	44	78	57	40	78	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	78	63	43	78	56	39	78	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	78	78	59	78	78	53	78	65	47	78	58	42	78	52	38	78	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	78	52	38	65	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	80	80	80	80	80	64	80	80	57	80	63	51	80	57	46	80	51	42	80	47	39	80	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	80	56	46	80	50	41	80	45	37	80	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	62	81	81	56	81	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	81	81	55	81	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	78	68	46	78	59	41	78	53	37	67	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	78	55	40	78	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	80	60	49	80	53	44	80	48	39	80	43	35	75	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	74	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	81	81	59	81	70	52	81	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	78	55	38	73	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	81	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
10	B	0-7	Interior	64	64	64	64	64	60	64	64	54	64	64	48	64	63	44	64	57	40	64	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	64	63	43	64	56	39	64	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	64	64	59	64	64	53	64	64	47	64	58	42	64	52	38	64	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	64	52	38	64	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	64	73	73	57	73	63	51	73	57	46	73	51	42	73	47	39	73	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	73	56	46	73	50	41	73	45	37	73	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	62	78	78	56	78	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	78	78	55	78	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	64	64	46	64	59	41	64	53	37	64	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	64	55	40	64	49	36	61	44	32	55	39	29	49	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	49	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	73	60	49	73	53	44	73	48	39	73	43	35	73	39	32	61	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	73	38	32	60	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	78	78	59	78	70	52	78	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	64	64	64	64	64	60	64	64	54	64	64	48	64	63	44	64	57	40	64	52	36	61	43	30	51	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	64	63	43	64	56	39	64	50	35	62	45	31	56	40	28	51	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	64	64	59	64	64	53	64	64	47	64	58	42	64	52	38	64	48	35	60	43	32	50	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	64	52	38	64	46	34	58	41	30	52	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	73	73	73	73	73	64	73	73	57	73	63	51	73	57	46	73	51	42	73	47	39	73	39	32	59	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	73	56	46	73	50	41	73	45	37	73	40	33	64	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	62	78	78	56	78	64	51	74	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	78	78	55	78	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	64	64	46	64	59	41	64	53	37	64	47	33	59	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	59	42	30	53	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	64	55	38	64	49	34	61	43	30	54	39	27	49	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	49	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		20-27	Interior	64	46	33	56	41	30	50	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		27-45	Interior	80	49	41	80	44	36	80	39	32	62	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	66	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
20	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	40	47	47	36	47	43	30	47	37	26	44	32	22	38	28	20	34	24	17	30	22	15
			Exposed	47	47	43	47	47	39	47	47	35	47	45	31	47	40	28	47	37	26	46	33	23	39	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	48	48	48	48	48	48	48	48	47	48	48	42	48	48	38	48	48	35	48	43	32	48	36	27	43	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	48	48	38	48	46	34	48	41	30	48	37	27	47	34	25	42	31	23	39	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	58	58	58	58	58	58	58	58	57	58	58	51	58	57	46	58	51	42	58	47	39	58	39	32	58	34	28	50	29	24	44	25	21	38	22	18	34	20	16
			Exposed	58	56	46	58	50	41	58	45	37	58	40	33	58	37	30	58	33	27	53	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	64	51	64	59	46	55	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	64	64	55	64	63	49	63	56	44	57	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	47	47	46	47	47	41	47	47	37	47	47	33	47	43	30	47	39	27	47	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	47	42	30	47	38	26	47	34	24	42	30	21	38	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	48	48	40	48	48	36	48	44	32	48	39	29	48	36	26	45	32	24	41	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	48	36	26	44	32	23	39	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	58	58	49	58	53	44	58	48	39	58	43	35	58	39	32	58	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	58	38	32	58	34	28	53	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	64	64	59	64	64	52	64	59	47	60	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	47	47	38	47	47	43	30	47	39	27	47	35	25	44	32	23	41	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13		
			Exposed	47	35	25	43	31	22	39	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10	11	12	9
		7-20	Interior	48	46	33	48	41	30	48	36	27	45	33	24	41	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	41	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	10	11	12	9	14	10	8
		20-27	Interior	60	49	41	60	44	36	60	39	32	60	35	29	56	32	26	51	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	55	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	9
		27-45	Interior	66	62	49	62	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

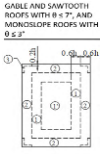
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

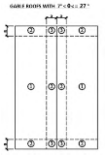
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

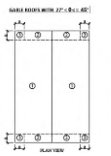
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

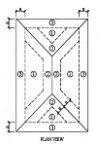












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

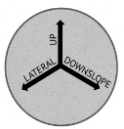
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

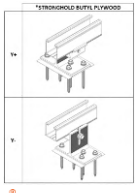
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	30	37	37	26	37	32	22	37	30	20	34	24	17	30	22	15
			Exposed	37	37	37	37	37	37	37	37	35	37	37	31	37	37	28	37	37	26	37	37	33	23	37	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	36	27	38	31	23	37	27	20	32	23	17	28	21	15	25	18	13
			Exposed	38	38	38	38	38	34	38	38	30	38	37	27	38	34	25	38	31	23	38	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	47	39	48	39	32	48	34	28	48	29	24	44	25	21	38	22	18	34	20	16
			Exposed	48	48	46	48	48	41	48	45	37	48	40	33	48	37	30	48	33	27	48	30	25	44	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	46	54	49	39	47	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	54	54	54	54	54	49	54	54	44	54	51	40	51	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	35	25	37	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	37	37	30	37	37	26	37	34	24	37	30	21	37	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	38	38	38	38	38	36	38	38	32	38	38	29	38	36	26	38	32	24	38	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	38	36	26	38	32	23	38	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	48	48	48	48	48	44	48	48	39	48	43	35	48	39	32	48	35	29	48	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	48	38	32	48	34	28	48	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	54	54	54	54	54	52	54	54	47	54	54	42	54	48	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	54	48	38	48	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	50	49	41	50	44	36	50	39	32	50	35	29	50	32	26	50	29	24	46	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	50	32	26	49	28	23	44	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	57	57	49	57	55	43	55	49	39	50	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	32	22	35	28	20	34	24	17	30	22	15
			Exposed	35	35	35	35	35	35	35	35	35	35	35	31	35	35	28	35	35	26	35	35	33	23	35	28	20	33	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	27	35	31	23	35	27	20	32	23	17	28	21	15	25	18	13
			Exposed	35	35	35	35	35	34	35	35	30	35	35	27	35	34	25	35	31	23	35	28	21	33	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	39	32	41	34	28	41	29	24	41	25	21	38	22	18	34	20	16
			Exposed	41	41	41	41	41	41	41	41	37	41	40	33	41	37	30	41	33	27	41	30	25	41	26	21	38	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	39	45	42	33	41	36	29	35	32	25	31	28	22	28	25	20
			Exposed	47	47	47	47	47	47	47	47	44	47	47	40	47	46	36	47	42	33	43	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	35	35	30	35	35	26	35	34	24	35	30	21	35	28	19	35	25	18	32	23	16	27	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	35	35	35	35	35	35	35	35	32	35	35	29	35	35	26	35	32	24	35	30	22	34	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	35	35	26	35	32	23	35	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	41	41	41	41	41	41	41	41	39	41	41	35	41	39	32	41	35	29	41	32	26	41	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
			Exposed	41	38	32	41	34	28	41	31	25	41	28	23	41	25	21	39	23	19	36	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	47	47	47	47	47	47	47	47	47	42	47	47	47	47	38	46	44	35	44	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	47	47	38	47	43	34	43	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	34	37	37	30	37	37	27	37	35	25	37	32	23	37	29	21	34	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	37	35	25	37	31	22	37	28	20	35	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	38	38	33	38	38	30	38	36	27	38	33	24	38	30	22	37	27	20	34	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	38	29	22	36	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	43	43	41	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	43	27	22	39	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	43	32	26	43	28	23	43	26	21	40	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	15	12	11	~~9~~
		27-45	Interior	50	50	49	50	50	43	50	49	39	49	44	35	45	40	32	41	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	45	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
50	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	28	20	30	24	17	30	22	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	28	20	30	24	17	29	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23	30	27	20	30	23	17	28	21	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	23	30	28	21	30	24	17	28	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	34	28	35	29	24	35	25	21	34	22	18	33	20	16
			Exposed	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	33	27	35	30	25	35	26	21	35	22	18	32	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	40	40	33	38	36	29	35	32	25	31	28	22	28	25	20
			Exposed	41	41	41	41	41	41	41	41	41	41	41	40	41	41	36	41	41	33	41	38	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	30	21	30	25	18	30	22	15	26	19	13	23	17	12	21	15	10
			Exposed	30	30	30	30	30	26	30	30	24	30	30	21	30	28	19	30	25	18	30	23	16	27	19	14	23	16	12	20	14	10	17	12	12	13	15	11	12	13	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	30	22	30	25	18	29	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	30	30	26	30	30	23	30	28	21	30	26	19	30	23	17	29	21	16	26	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	32	26	35	27	22	35	23	19	33	20	16	30	17	14	26	15	13	23	14	11
			Exposed	35	35	32	35	34	28	35	31	25	35	28	23	35	25	21	35	23	19	35	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	35	39	39	32	37	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	41	41	38	41	41	34	41	39	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	32	32	32	32	32	32	32	32	32	32	32	27	32	32	25	32	32	23	32	29	21	32	25	17	29	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	32	32	25	32	32	22	32	28	20	32	25	18	32	23	16	29	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	~~9~~
		7-20	Interior	33	33	33	33	33	30	33	33	27	33	33	24	33	30	22	33	27	20	33	25	18	29	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	33	29	22	33	26	19	32	24	17	29	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	38	38	38	38	38	36	38	38	32	38	35	29	38	32	26	38	29	24	38	27	22	37	22	19	33	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	38	32	26	38	28	23	38	26	21	38	23	19	36	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	10	13	11	~~9~~
		27-45	Interior	44	44	44	44	44	43	44	44	39	43	43	35	42	40	32	40	37	29	37	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	44	40	32	40	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11

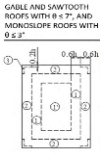
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

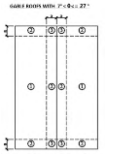
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

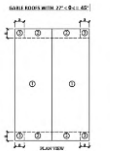
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

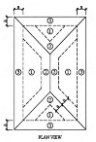












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

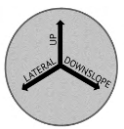
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

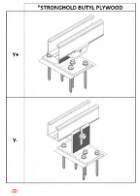
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	24	17	25	25	22	25	22	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	24	17	25	21	15	25	18	13	22	16	11	19	14	15
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	23	17	25	21	15	25	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	17	25	20	15	24	17	13	21	15	11	18	13	15	16	12	13
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	24	31	31	25	21	31	22	18	30	20	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	30	25	31	26	21	31	22	18	31	19	16	28	16	14	25	14	12	22	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	33	34	34	29	33	32	25	31	28	22	28	25	20
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	19	25	22	15	25	21	19	13	23	17	12	21	15	10
			Exposed	25	25	25	25	25	25	25	25	24	25	25	21	25	25	19	25	25	18	25	23	16	25	19	14	23	16	12	20	14	10	17	12	13	15	11	12	13	15	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	18	25	21	16	25	18	14	22	16	12	19	14	10	17	13	14
			Exposed	25	25	25	25	25	25	25	25	21	25	25	19	25	23	17	25	21	16	25	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
			Exposed	31	31	31	31	31	28	31	31	25	31	28	23	31	25	21	31	23	19	31	21	17	30	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	35	35	35	32	34	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	37	37	37	37	37	34	37	37	30	37	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	28	28	23	28	28	21	28	25	17	28	21	15	25	18	13	22	16	11	19	14	15	17	12	13
			Exposed	28	28	25	28	28	22	28	28	20	28	25	18	28	23	16	28	21	15	26	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	9
		7-20	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	27	20	28	25	18	28	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12
			Exposed	28	28	22	28	26	19	28	24	17	28	21	16	26	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	32	26	33	29	24	33	27	22	33	22	19	32	19	16	29	17	14	25	14	12	22	13	10	19	11	14
			Exposed	33	32	26	33	28	23	33	26	21	33	23	19	33	21	17	33	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	~~10~~	13	11	~~9~~
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	35	38	38	32	37	37	29	35	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11
			Exposed	39	39	32	39	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11
70	B	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	15
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	15	22	18	13
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	22	18	27	20	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	26	21	27	22	18	27	19	16	27	16	14	25	14	12	22	13	11			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	31	29	30	30	25	29	28	22	28	25	20			
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	13			
	C	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	15	22	19	13	22	17	12	21	15	10			
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	19	14	22	16	12	20	14	10	17	12	13	14	10	12	13	14	10	11	12	9			
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	16	22	18	14	22	16	12	19	14	10	17	13	14			
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	21	16	22	19	14	22	16	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9			
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	23	19	27	20	16	26	17	14	25	15	13	23	14	11			
			Exposed	27	27	27	27	27	27	27	27	25	27	27	23	27	25	21	27	23	19	27	21	17	27	18	15	26	15	12	22	13	11	19	11	14	17	10	13	15	13	11			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	27	29	29	23	28	25	20	24	22	17	22	19	15	19	17	14			
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	33	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13			
	D	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	17	24	21	15	24	18	13	22	16	11	19	14	15	17	12	13		
			Exposed	24	24	24	24	24	22	24	24	20	24	24	18	24	23	16	24	21	15	24	19	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	9			
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	18	24	21	15	24	18	13	21	15	11	18	13	15	16	12	13	14	10	12			
			Exposed	24	24	22	24	24	19	24	24	17	24	21	16	24	19	14	24	18	13	22	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~			
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	30	24	30	27	22	30	22	19	29	19	16	27	17	14	25	14	12	22	13	10	19	11	14			
			Exposed	30	30	26	30	28	23	30	26	21	30	23	19	30	21	17	30	19	16	30	17	14	25	15	12	21	13	10	19	11	14	16	14	12	14	13	~~10~~	13	11	~~9~~			
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	35	35	34	34	32	33	33	29	32	32	26	31	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11			
			Exposed	36	36	32	36	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11			
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	18	13			
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	22	18	24	20	16			
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	25	27	27	22	25	25	20			
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	22	27	24	19	23	21	16	20	18	14			
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	13	19	17	12	19	15	10			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	16	12	19	14	10	17	12	13	15	11	12	13	15	10			
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	18	14	19	16	12	19	14	10	17	13	14			
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	19	14	19	19	12	19	14	10	17	12	13	14	10	12	13	14	10	11	12	9			
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	16	24	17	14	23	15	13	22	14	11			
			Exposed	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	21	17	24	18	15	24	15	12	22	13	11	19	11	14	17	10	13	15	13	11			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	27	27	27	23	26	25	20	24	22	17	22	19	15	19	17	14			
			Exposed	30	30	30	30	30	30	30	30	27	30	30	25	30	29	23	29	26	21	25	22	18	21	19	15	18	16	13	16	14	11	14	13	15	12	11	13						
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13			
			Exposed	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	15	21	19	13	21	16	11	19	14	15	16	12	13	14	10	11	13	14	~~10~~	11	12	9			
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	15	21	18	13	21	15	11	18	13	15	16	12	13	14	10	12			
			Exposed	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	18	13	21	16	12	19	14	15	16	12	13	14	15	11	12	13	~~10~~	11	12	~~9~~	14	10	~~8~~			
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	22	19	26	19	16	25	17	14	24	14	12	22	13	10	19	11	14						
			Exposed	26	26	26	26	26	23	26	26	21	26	23	19	26	21	17	26	21	17	26	21	17	26	20	15	21	13	10	19	11	14	16	14	12	14	13	~~10~~	13	11	~~9~~			
		27-45	Interior	33	33	33	33	33	33	33	33	32	32	32	31	31	31	31	31	31	29	30	30	26	28	28	22	27	24	19	23	21	17	20	18	14	18	16	13	16	14	11			
			Exposed	33	33	32	33	33	28	33	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	12	15	14	11	13	12	14	12	10	13	10	14	11			

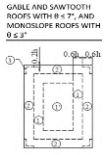
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

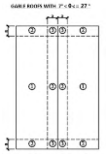
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

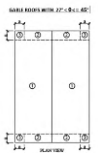
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

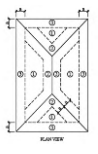












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

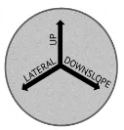
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

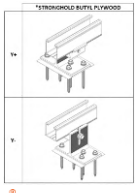
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	34	39	39	30	39	39	27	39	35	24	39	31	22	39	28	20	36	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	39	31	21	39	27	19	34	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	39	39	29	39	36	26	39	32	23	39	29	21	37	26	19	33	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	37	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	40	40	36	40	40	32	40	35	28	40	31	25	40	28	23	40	25	21	40	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	40	28	23	40	25	20	40	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	41	41	41	41	41	40	41	41	34	41	41	31	41	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	41	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	39	33	23	39	29	20	37	26	18	33	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	39	27	20	34	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	40	30	24	40	26	22	40	24	19	38	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	41	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	39	27	19	34	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	40	24	20	40	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
10	B	0-7	Interior	32	32	32	32	32	30	32	32	27	32	32	24	32	31	22	32	28	20	32	26	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	32	31	21	32	27	19	32	25	17	31	22	15	28	20	14	25	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	32	32	29	32	32	26	32	32	23	32	29	21	32	26	19	32	24	17	30	21	16	25	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	32	26	19	32	23	17	28	20	15	26	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	37	37	36	37	37	32	37	35	28	37	31	25	37	28	23	37	25	21	37	23	19	34	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	37	28	23	37	25	20	37	22	18	35	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	39	39	39	39	39	34	39	39	31	39	35	28	36	32	25	33	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10			
			Exposed	39	35	27	35	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	32	32	23	32	29	20	32	26	18	32	23	16	29	21	15	27	19	13	24	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	29	21	15	26	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	32	27	20	32	24	18	30	22	16	27	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	37	30	24	37	26	22	37	24	19	37	21	17	33	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	33	19	16	30	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	39	38	29	38	33	26	33	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	32	27	19	32	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	31	23	16	28	20	15	25	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	38	24	20	38	22	18	34	19	16	31	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	34	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
20	B	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	23	18	13	22	16	11	19	14	10	17	12	8	15	11	7
			Exposed	23	23	21	23	23	19	23	23	17	23	22	15	23	20	14	23	18	13	23	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	17	24	21	16	24	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	24	24	19	24	23	17	24	20	15	24	18	13	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	29	29	29	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	19	16	29	17	14	25	14	12	22	12	10	19	11	9	17	10	8
			Exposed	29	28	23	29	25	20	29	22	18	29	20	16	29	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	25	32	29	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	32	32	27	32	31	24	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	23	23	23	23	23	20	23	23	18	23	23	16	23	21	15	23	19	13	23	17	12	20	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	23	21	15	23	19	13	23	17	12	21	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	8	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	24	24	20	24	24	18	24	22	16	24	19	14	24	18	13	22	16	12	20	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	24	18	13	22	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5	8	6	4
		20-27	Interior	29	29	24	29	26	22	29	24	19	29	21	17	29	19	16	29	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	29	19	16	29	17	14	26	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	32	32	29	32	32	26	32	29	23	30	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	23	23	19	23	23	17	23	21	15	23	19	13	23	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	24	23	16	24	20	15	24	18	13	22	16	12	20	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	20	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	30	24	20	30	22	18	30	19	16	30	17	14	28	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	27	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	33	31	24	31	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

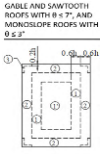
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

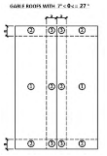
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

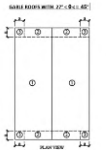
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

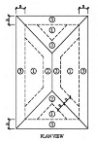












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

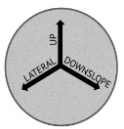
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

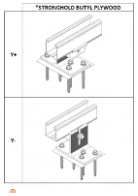
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	18	13	19	16	11	19	14	10	17	12	8	15	11	7
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	18	13	19	16	11	19	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	18	13	19	15	11	18	13	10	16	11	8	14	10	7	12	9	6
			Exposed	19	19	19	19	19	17	19	19	15	19	18	13	19	17	12	19	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	19	16	24	17	14	24	14	12	22	12	10	19	11	9	17	10	8
			Exposed	24	24	23	24	24	20	24	22	18	24	20	16	24	18	15	24	16	13	24	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	24	19	23	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	27	27	27	27	27	24	27	27	22	27	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	19	19	19	19	19	19	19	19	18	19	19	16	19	19	15	19	19	13	19	17	12	19	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	19	19	15	19	19	13	19	17	12	19	15	10	19	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	19	19	19	19	19	18	19	19	16	19	19	14	19	18	13	19	16	12	19	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	19	18	13	19	16	11	19	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	7	8	6	6	7	4
		20-27	Interior	24	24	24	24	24	22	24	24	19	24	21	17	24	19	16	24	17	14	24	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	24	19	16	24	17	14	24	15	12	24	14	11	21	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	27	27	27	27	27	26	27	27	23	27	27	21	27	24	19	24	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	27	24	19	24	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	19	19	19	19	19	17	19	19	15	19	19	13	19	17	12	19	16	11	19	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	19	17	12	19	15	11	19	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	25	24	20	25	22	18	25	19	16	25	17	14	25	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	25	16	13	24	14	11	22	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	7	6	8	7	6	7	6	5
		27-45	Interior	28	28	24	28	27	21	27	24	19	25	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
40	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	10	17	12	8	15	11	7
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	17	11	17	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	15	11	17	13	10	16	11	8	14	10	7	12	9	6
			Exposed	17	17	17	17	17	17	17	17	17	17	17	13	17	17	12	17	15	11	17	14	10	16	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	16	20	17	14	20	14	12	20	12	10	19	11	9	17	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	16	20	18	15	20	16	13	20	15	12	20	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	22	21	16	20	18	14	18	16	12	15	14	11	14	12	10
			Exposed	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	13	17	17	12	17	15	10	17	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	17	17	15	17	17	13	17	17	12	17	15	10	17	14	9	17	12	9	16	11	8	13	9	7	11	8	9	10	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	12	17	15	11	17	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	17	17	13	17	17	14	17	17	13	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	7	8	6	6	7	4
		20-27	Interior	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	16	13	20	13	11	20	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	20	19	16	20	17	14	20	15	12	20	14	11	20	12	10	19	11	9	18	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	22	17	22	20	16	19	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	23	23	19	23	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	13	18	17	12	18	16	11	18	14	10	17	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	18	17	12	18	15	11	18	14	10	17	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	19	19	16	19	19	15	19	18	13	19	16	12	19	15	11	18	13	10	17	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	19	15	11	18	13	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	21	21	20	21	21	18	21	19	16	21	17	14	21	16	13	21	14	12	21	13	11	19	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	21	16	13	21	14	11	21	13	10	20	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	7	6	8	7	6	7	6	5
		27-45	Interior	25	25	24	25	25	21	25	24	19	24	22	17	22	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
50	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	8	15	11	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	11	15	14	10	15	12	8	14	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	10	15	11	8	14	10	7	12	9	6
			Exposed	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	11	15	14	10	15	12	8	14	10	7	12	8	6	10	7	8	9	6	7	8	6	6	7	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	14	12	17	12	10	17	11	9	17	10	8
			Exposed	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	16	17	17	13	17	17	12	17	13	10	17	11	9	16	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	16	19	18	14	18	16	12	15	14	11	14	12	10
			Exposed	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	19	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	6
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	10	15	12	9	15	11	7	13	9	6	11	8	9	10	7	8
			Exposed	15	15	15	15	15	13	15	15	12	15	15	10	15	14	9	15	12	9	15	11	8	13	9	7	11	8	8	9	10	7	7	8	6	6	7	8	6	7	5
		7-20	Interior	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	12	9	14	10	8	12	9	7	11	8	6	9	7	8	8	6	7	8	6
			Exposed	15	15	13	15	15	11	15	14	10	15	13	9	15	11	8	14	10	8	13	9	7	11	8	6	9	7	8	8	6	6	7	8	5	6	7	5	8	6	4
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	13	11	17	11	9	17	10	8	15	8	7	13	7	6	11	7	8
			Exposed	17	17	16	17	17	14	17	15	12	17	14	11	17	12	10	17	11	9	17	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	20	20	17	20	20	16	18	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	21	21	19	21	21	17	21	19	15	19	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	12	16	16	11	16	14	10	16	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6	7	5	5
			Exposed	16	16	12	16	15	11	16	14	10	16	12	9	16	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	10	16	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	16	15	11	16	15	9	16	12	8	14	10	8	13	9	7	12	9	6	11	8	6	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	19	19	19	19	19	18	19	19	16	19	17	14	19	16	13	19	14	12	19	13	11	18	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	19	16	13	19	14	11	19	13	10	19	11	9	18	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	22	22	22	22	22	22	21	22	19	21	21	17	21	20	16	20	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

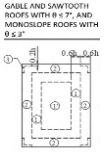
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

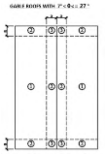
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

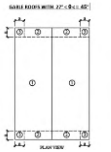
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

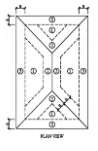












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

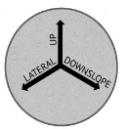
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

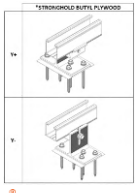
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	11	7			
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	11	8	8	9	7	7
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	8	13	10	7	12	9	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	8	13	10	7	12	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	12	15	12	10	15	11	9	15	10	8		
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	13	10	15	11	9	15	9	8	14	8	7	12	7	6	11	6	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	14	16	16	12	15	14	11	14	12	10			
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	7	12	10	6	11	8	8	10	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	9	12	11	8	12	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	13	10	8	12	9	7	11	8	6	9	7	8	8	6	7
			Exposed	13	13	13	13	13	11	13	13	10	13	13	9	13	11	8	13	10	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	8	6	4	7	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	13	15	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	15	12	10	15	11	9	15	10	8	15	9	7	13	7	6	11	6	8	10	8	7	8	7	6	11	6	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	17	17	13	16	14	11	14	12	10	12	11	8	11	9	7	9	8	7			
			Exposed	18	18	18	18	18	17	18	18	15	18	17	13	17	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	8	14	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	14	14	12	14	14	11	14	14	10	14	12	9	14	11	8	14	10	7	13	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	10	7	12	9	6	10	7	8	9	6	7	8	9	6	7	8	6
			Exposed	14	14	11	14	13	9	14	12	8	14	10	8	13	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	13	11	16	11	9	16	9	8	14	8	7	12	7	6	11	6	8	9	8	7
			Exposed	17	16	13	17	14	11	17	13	10	17	11	9	17	10	8	16	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	19	19	19	17	19	19	16	18	18	14	18	16	13	16	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5
			Exposed	20	20	16	20	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	5	8	7	5	6	5	4	5	4	3
70	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	11	7			
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	11	8	8	9	7	7
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	11	9	13	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	11	9	13	9	8	13	8	7	12	7	6	11	6	8
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	15	15	12	14	14	11
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	7	11	10	6	11	8	8	10	7	8
			Exposed	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	9	11	11	8	11	9	7	11	8	9	10	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	9	11	11	8	11	9	7	11	8	8	9	7	7
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	8	11	9	7	11	8	6	9	7	8	8	6	7	7	8	6	8	6	4	7	5	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	13	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	14	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	10	7	12	9	6	11	8	8	9	7	7	8	6	6
			Exposed	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	12	9	6	11	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	10	7	10	7	8	9	7	6	10	7	6	9	7	8	8	6	7
			Exposed	12	12	11	12	12	9	12	12	8	12	10	8	12	9	7	12	9	6	11	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	14	12	15	13	11	15	11	9	14	8	8	12	9	7	11	9	6	10	8	7			
			Exposed	15	15	13	15	14	11	15	13	10	15	11	9	15	10	8	15	9	8	15	8	7	12	7	6	11	6	8	9	8	7	9	8	6	7	6	5	6	5	4
		27-45	Interior	18	18	18	18	18	18	18	18	18	17	17	17	17	17	16	17	17	14	16	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5
			Exposed	18	18	16	18	18	14	18	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	5	8	7	5	6	5	4	5	4	3
80	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	7
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	11	9	12	10	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8	12	8	7	12	7	6
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	12	13	13	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	11	13	12	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	9
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	9	9	7	7	8	6	6	7	8	6	6	7	5
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	8	9	9	7	9	8	6	9	7	8	8	6	7	8	6	6	7	8	6	6	7	5
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	8	12	8	7	11	7	6	11	7	8
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	7	12	7	6	11	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	13	13	13	11	13	12	10	12	11	8	11	9	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6
	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6	10	7	8	9	6	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	8	11	11	7	11	9	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	13	8	7	12	7	6	11	7	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	10	13	11	9	13	9	8	13	8	7	8	7	6	7	7	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	13	14	14	11	14	12	10	12	11	8	11	9	7	9	8	6
			Exposed	16	16	16	16	16	14	16	16	12	16	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	5	8	7	5	6	5	4	5	4	3

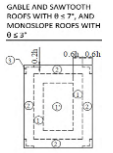
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

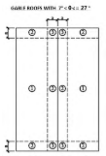
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

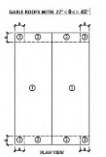
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

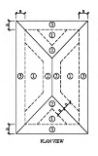












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

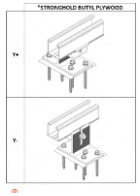
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	6	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	6	10	6	8
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	11	12	12	10	12	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	11	10	8	10	9	7	9	8	6	9	8	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	9	8	7	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	9	8	7	7	8	6	6	7	8	6	7	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	7	8	6	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	7	6	10	6	8	10	8	7	8	7	6	7	7	5
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	8	11	9	7	9	8	7	9	8	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	12	11	9	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6	8	6	6
	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	8	9	7	7	8	6	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	8	9	7	7	8	9	6	7	8	5	6	7	5	8	6	4
		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	7	8	9	6	7	8	9	6	7	8	6
			Exposed	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7	9	9	6	9	8	9	9	7	7	8	9	6	7	7	5	6	6	5	8	6	4	7	5	4
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	9	12	9	8	11	8	7	11	7	6	11	6	8	9	8	7
			Exposed	12	12	12	12	12	11	12	12	10	12	11	9	12	10	8	12	9	8	12	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	13	13	13	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	15	15	15	15	15	14	15	15	12	15	14	11	14	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5
100	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	8	7	7	7	7	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	8	8	6	7	8	6	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	8	9	6	8
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	11	10	8	10	9	7	9	8	6	8	7	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	7	8	7	7	8
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	9	7	7	7	7	6	6	7	8	6	7	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	7	8	6	7	8	6	8	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	8	9	8	7	9	7	6	9	7	8
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	8	7	7	8	6	6	8	6	8	8	6	8
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	11	10	8	10	9	7
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	9	6	7	8	5	6	7	5	8	6	4	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	8	6	7	8	6	8	6	4
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	8	10	8	7	10	7	6	10	6	8	9	8	7
			Exposed	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	8	10	8	7	10	7	6	10	6	8	9	8	7	8	7	6	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	12	11	8	10	9	7	9	8	6	7	7	8	6	9	7	9	8	6	8	7	5

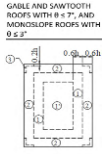
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

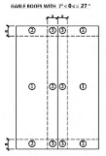
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

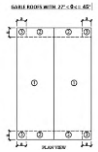
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

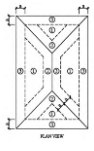












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

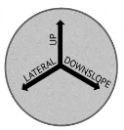
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

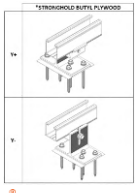
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	76	76	71	76	76	59	76	76	53	76	74	47	76	62	43	76	56	39	76	51	35	59	43	30	43	31	22	38	27	19	30	36	25	43	31	22	38	27	19
			Exposed	76	61	43	76	54	38	73	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	77	77	58	77	77	52	77	63	46	77	57	41	77	51	37	65	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	77	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	78	78	78	78	78	63	78	78	56	78	61	50	78	55	45	78	50	41	78	46	38	75	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	78	55	45	78	49	40	78	44	36	78	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	79	79	79	79	79	79	79	79	77	79	79	60	79	79	54	79	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	79	79	54	79	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	76	65	45	76	58	40	76	51	36	65	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	~~10~~
		7-20	Interior	77	54	40	77	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	~~10~~	11	12	9
		20-27	Interior	78	59	48	78	52	43	78	46	38	78	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	79	79	57	79	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	76	53	37	69	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	~~10~~	11	12	~~8~~
		7-20	Interior	62	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	~~10~~	~~7~~
		20-27	Interior	78	48	40	78	43	35	74	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	~~10~~	12	11	~~9~~
		27-45	Interior	79	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
10	B	0-7	Interior	62	62	62	62	62	59	62	62	53	62	62	47	62	62	43	62	56	39	62	51	35	59	43	30	50	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	62	61	43	62	54	38	62	48	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	63	63	58	63	63	52	63	63	46	63	57	41	63	51	37	63	46	34	59	42	31	49	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	63	51	37	63	45	33	56	41	30	51	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	71	71	71	71	71	63	71	71	56	71	61	50	71	55	45	71	50	41	71	46	38	71	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	71	55	45	71	49	40	71	44	36	71	39	32	62	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	60	77	77	54	77	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	77	77	54	77	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	62	62	45	62	58	40	62	51	36	62	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	58	42	29	51	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	~~10~~
		7-20	Interior	63	54	40	63	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	48	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	~~10~~	11	12	9
		20-27	Interior	71	59	48	71	52	43	71	46	38	71	42	34	69	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	67	38	31	58	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	77	77	57	77	65	51	65	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	62	53	37	62	47	33	59	42	30	53	38	27	48	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	48	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	~~10~~	11	12	~~8~~
		7-20	Interior	46	45	33	55	40	29	49	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	~~10~~	~~7~~
		20-27	Interior	73	48	40	73	43	35	73	38	32	60	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	~~10~~	12	11	~~9~~
		27-45	Interior	78	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
20	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	46	35	46	43	30	46	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	46	46	43	46	46	38	46	46	34	46	44	30	46	39	28	46	36	25	45	33	23	38	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	46	46	34	46	42	31	46	36	26	42	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	46	46	37	46	45	33	46	41	30	46	36	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	50	56	55	45	56	50	41	56	46	38	56	39	32	56	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	56	55	45	56	49	40	56	44	36	56	39	32	56	36	29	56	32	27	51	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	60	63	63	54	63	63	49	63	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	63	63	54	63	61	48	62	55	43	55	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	46	46	45	46	46	40	46	46	36	46	46	32	46	42	29	46	38	27	46	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	46	42	29	46	37	26	46	33	23	41	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	~~10~~
		7-20	Interior	46	46	40	46	46	35	46	43	31	46	39	28	46	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	46	35	26	43	31	23	38	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	~~10~~	11	12	9
		20-27	Interior	56	56	48	56	52	43	56	46	38	56	42	34	56	38	31	56	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	56	38	31	56	34	28	52	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	63	63	57	63	63	51	63	58	46	59	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	46	46	37	46	46	33	46	42	30	46	38	27	46	35	24	44	31	22	40	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	46	34	24	42	31	21	38	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	~~10~~	11	12	~~8~~
		7-20	Interior	46	45	33	46	40	29	46	36	26	44	32	24	40	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	40	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	~~10~~	10	11	~~8~~	14	~~10~~	~~7~~
		20-27	Interior	59	48	40	59	43	35	59	38	32	59	35	29	54	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	~~10~~	12	11	~~9~~
		27-45	Interior	65	60	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

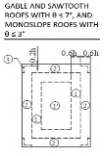
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

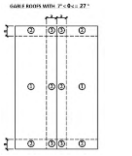
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

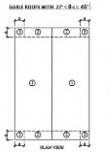
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

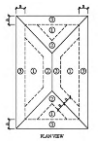












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

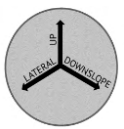
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

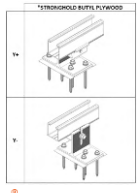
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	36	25	37	31	22	37	27	19	33	24	17	29	21	15
			Exposed	37	37	37	37	37	37	37	37	34	37	37	30	37	37	28	37	36	25	37	33	23	37	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	36	26	37	30	22	36	26	19	31	23	17	28	20	15	24	18	13
			Exposed	37	37	37	37	37	33	37	37	30	37	36	27	37	33	24	37	30	22	37	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	46	38	47	39	32	47	28	23	43	25	20	38	22	18	33	19	16			
			Exposed	47	47	45	47	47	40	47	44	36	47	39	32	47	36	29	47	32	27	47	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	45	53	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	53	53	53	53	53	48	53	53	43	53	49	39	50	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	32	37	37	29	37	37	27	37	35	24	37	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	37	37	29	37	37	26	37	33	23	37	30	21	37	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	37	37	37	37	37	35	37	37	31	37	37	28	37	35	26	37	32	23	37	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	37	35	26	37	31	23	37	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	47	47	47	47	47	43	47	46	38	47	42	34	47	38	31	47	34	28	47	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	47	38	31	47	34	28	47	30	25	47	27	22	42	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	53	53	53	53	53	51	53	53	46	53	52	41	53	47	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	53	47	37	47	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	37	37	37	37	37	33	37	37	30	37	37	27	37	35	24	37	31	22	37	29	20	33	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	37	34	24	37	31	21	37	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	49	48	40	49	43	35	49	38	32	49	35	29	49	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	49	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	55	55	48	55	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
40	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	25	34	31	22	34	27	19	33	24	17	29	21	15
			Exposed	34	34	34	34	34	34	34	34	34	34	34	30	34	34	28	34	34	25	34	33	23	34	27	19	32	23	17	28	20	14	24	18	12	21	16	11	19	14	15
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	26	34	30	22	34	26	19	31	23	17	28	20	15	24	18	13
			Exposed	34	34	34	34	34	33	34	34	30	34	34	27	34	33	24	34	30	22	34	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	39	32	40	33	27	40	28	23	40	25	20	38	22	18	33	19	16
			Exposed	40	40	40	40	40	40	40	40	40	40	40	36	40	39	32	40	36	29	40	32	27	40	30	24	40	25	21	37	21	18	32	18	15	28	16	13	24	14	12
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	38	44	41	33	40	36	28	35	31	25	31	27	22	27	24	19
			Exposed	46	46	46	46	46	46	46	46	43	46	46	39	46	45	35	46	41	32	42	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	27	34	34	24	34	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	16
			Exposed	34	34	29	34	34	26	34	33	23	34	30	21	34	27	19	34	24	17	31	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	34	34	34	34	34	34	34	34	31	34	34	28	34	34	26	34	32	23	34	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	34	34	26	34	31	23	34	28	20	34	25	18	31	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	40	40	40	40	40	40	40	40	38	40	40	34	40	38	31	40	34	28	40	31	26	40	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
			Exposed	40	38	31	40	34	28	40	30	25	40	27	22	40	25	20	38	22	18	35	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	45	43	34	43	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	46	46	37	46	42	33	42	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	27	36	35	24	36	31	22	36	29	20	33	24	17	28	21	16	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	36	34	24	36	31	21	36	27	19	34	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	37	37	33	37	37	29	37	36	26	37	32	24	37	29	21	36	26	19	33	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	37	29	21	35	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	42	42	40	42	42	35	42	38	32	42	35	29	42	31	26	42	29	23	42	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	42	31	26	42	28	23	42	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	48	48	48	48	48	42	48	48	38	47	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11
50	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	27	19	29	24	17	29	21	15
			Exposed	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	27	19	29	23	17	28	20	14	24	18	12	21	16	11	19	14	15			
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	23	17	28	20	15	24	18	13
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	22	30	27	20	30	23	17	27	20	15	23	17	13	20	15	11	18	13	15	16	12	13
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	33	27	34	28	23	34	25	20	34	22	18	33	19	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	27	34	30	24	34	25	21	34	24	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	39	39	33	37	36	28	35	31	25	31	27	22	27	24	19
			Exposed	40	40	40	40	40	40	40	40	40	40	40	39	40	40	35	40	40	32	40	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	29	20	29	25	17	29	21	15	26	19	13	23	16	12	20	15	16
			Exposed	29	29	29	29	29	26	29	29	23	29	29	21	29	27	19	29	24	17	29	22	16	26	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	29	21	30	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14	
			Exposed	30	30	26	30	30	23	30	28	20	30	25	18	30	23	17	28	21	15	26	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	31	26	34	26	22	34	23	19	33	20	16	29	17	14	26	15	12	23	13	11
			Exposed	34	34	31	34	34	28	34	30	25	34	27	22	34	25	20	34	22	18	34	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	34	38	38	31	36	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	40	40	37	40	40	33	40	38	30	38	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	27	31	31	24	31	31	22	31	29	20	31	24	17	28	21	15	25	18	13	21	16	11	19	14	15	17	12	13
			Exposed	31	31	24	31	31	21	31	27	19	31	25	17	31	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8
		7-20	Interior	32	32	32	32	32	29	32	32	26	32	32	24	32	29	21	32	26	19	32	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	32	29	21	32	26	19	32	23	17	29	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	12	7
		20-27	Interior	37	37	37	37	37	35	37	37	32	37	35	29	37	31	26	37	29	23	37	26	21	36	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	37	31	26	37	28	23	37	25	21	37	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	43	43	43	43	43	42	43	43	38	42	42	34	41	39	31	39	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	43	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

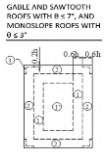
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

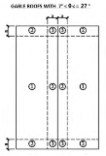
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

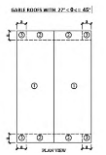
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

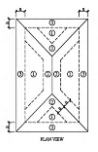












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

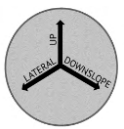
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

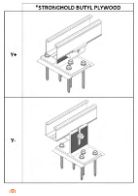
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																											
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																									
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	24	17	25	21	15						
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	17	25	20	14	24	18	12	21	16	11	19	14	15			
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	17	25	20	15	24	18	13			
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	20	15	23	17	13	20	15	11	18	13	15	16	12	13			
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	28	23	30	25	20	30	27	22	29	19	16			
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	27	30	30	24	30	25	21	30	21	18	30	18	15	28	16	13	24	14	12	22	13	10			
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	33	34	34	28	32	31	25	31	27	22	27	24	19			
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12			
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	17	25	21	15	25	19	13	23	16	12	20	15	16			
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	25	22	16	25	19	13	22	16	11	19	14	15	17	12	13	15	16	11	13	14	10		
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	18	25	21	15	25	18	13	22	16	12	19	14	16	17	12	14
			Exposed	25	25	25	25	25	23	25	25	20	25	25	18	25	23	17	25	21	15	25	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9			
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	26	22	30	23	19	29	20	16	28	17	14	26	15	12	23	13	11			
			Exposed	30	30	30	30	30	28	30	30	25	30	27	22	30	25	20	30	22	18	30	20	17	30	17	14	25	15	12	22	13	10	19	11	14	17	12	15	13	11				
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	34	35	35	31	33	33	26	31	28	22	27	25	19	24	21	17	21	19	15	19	17	13				
			Exposed	36	36	36	36	36	33	36	36	30	36	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	27	20	27	24	17	27	21	15	25	18	13	21	16	11	19	14	15	17	12	13			
			Exposed	27	27	24	27	27	21	27	27	19	27	25	17	27	22	16	27	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8			
		7-20	Interior	28	28	28	28	28	28	28	28	26	28	28	24	28	28	21	28	26	19	28	24	18	28	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11			
			Exposed	28	28	21	28	26	19	28	23	17	28	21	15	26	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7				
		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	31	26	33	29	23	33	26	21	32	22	18	31	19	15	28	16	13	24	14	12	21	12	10	19	11	14			
			Exposed	33	31	26	33	28	23	33	25	21	33	22	19	33	20	17	32	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9			
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	34	37	37	31	36	36	28	35	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11			
			Exposed	38	38	31	38	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11					
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15						
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	12	21	16	11	19	14	15			
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17	22	20	15	22	18	13
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	25	20	27	22	18	26	19	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	25	21	27	21	18	27	18	15	27	16	13	24	14	12	22	13	10			
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	30	30	28	29	29	25	28	27	22	27	24	19			
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12			
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	15	21	19	13	21	16	12	20	15	16						
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	13	21	16	11	19	14	15	17	12	13	15	16	11	13	14	10				
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	21	15	22	18	13	22	16	12	19	14	16	17	12	14			
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	17	22	21	15	22	19	14	22	16	12	19	14	15	16	12	13	14	16	12	12	14	10	11	12	9			
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	27	17	27	21	15	27	17	14	24	15	12	23	13	11			
			Exposed	27	27	27	27	27	25	27	27	22	27	25	20	27	22	18	27	20	17	27	17	14	25	15	12	22	13	10	19	11	14	17	15	12	15	13	11						
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	26	28	28	22	27	25	19	24	21	17	21	19	15	19	17	13			
			Exposed	33	33	33	33	33	30	33	33	27	33	31	24	31	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13						
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	17	23	21	15	23	18	13	21	16	11	19	14	15	17	12	13			
			Exposed	23	23	23	23	23	21	23	23	19	23	23	17	23	22	16	23	20	14	23	19	13	22	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8			
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	20	15	24	17	13	21	15	11	18	13	15	16	11	13	14	16	11			
			Exposed	24	24	21	24	24	19	24	23	17	24	21	15	24	19	14	24	17	13	22	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	9	14	10	7				
		20-27	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	23	29	26	21	29	22	18	28	19	15	27	16	13	24	14	12	21	12	10	19	11	14			
			Exposed	29	29	26	29	28	23	29	25	21	29	22	19	29	20	17	29	19	15	29	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9			
		27-45	Interior	35	35	35	35	35	35	35	35	35	34	34	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11			
			Exposed	35	35	31	35	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11			
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15		
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	19	15	19	14	15
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	22	18	23	19
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	25	26	26	22	25	24	19
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	25	29	27	21	26	23	18	23	20	16	20	18	14	18	16	12			
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	15	19	19	16	19	19	16	19	19	16
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	19	15	19	19	14	19	16	12	19	14	16	12	13	14	16	12	12	14	10	11	12	9				
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	23	20	16	23	17	14	22	15	12	22	13	11			
			Exposed	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	22	18	23	20	17	23	17	14	23	15	12	22	13	10	19	11	14	17	12	15	13	11				
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	27	27	26	26	22	25	25	19	24	21	17	21	19	15	19	17	13			
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	29	28	22	29	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13		
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	13	21	16	11	19	14	15	17	12	13			
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	19	13	21	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8			
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	17	13	21	15	11	18	13	15	16	11	13	14	16	11
			Exposed	21	21	21	21	21	19	21	21	17	21	21	15	21	19	14	21	17	13	21	16	12	18	13	15	16	11	13	13	15	11	12	13	10	11	8	14	10	7				
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	25	19	15	25	16	13	24	14	12	21	12	10	19	11	14			
			Exposed	26	26	26	26	26	23	26	25	21	26	22	19	26	20	17	26	19	15	26	17	14	25	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9			
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	30	30	28	29	29	26	28	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11			
			Exposed	32	32	31	32	32	28	32	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11			

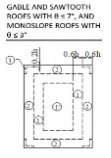
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

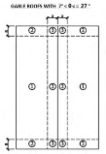
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

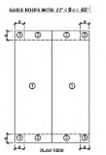
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

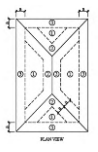












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Plywood #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

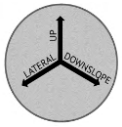
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

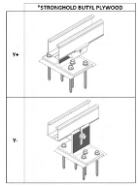
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	16	11	17	14	15
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	12	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	18	15	21	16	13	21	14	12	21	13	10
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	23	18	23	20	16	20	18	14
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	15	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	16	11	17	14	15	17	12	13	15	16	11	13	14	10
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	14	16	17	12	14
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	16	12	17	14	15	16	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11			
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	20	17	21	17	14	21	15	12	21	13	10	19	11	14	17	15	12	15	13	11			
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	21	17	21	19	15	19	17	13
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	13	18	16	11	18	14	15	17	12	13		
			Exposed	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	13	18	16	11	18	13	14	16	12	12	14	15	11	12	14	10	11	12	8		
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	17	13	19	15	11	18	13	15	16	11	13	14	16	11
			Exposed	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	17	13	19	16	12	18	13	15	16	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	22	18	23	19	15	23	16	13	22	14	12	21	12	10	19	11	14
			Exposed	23	23	23	23	23	23	23	23	21	23	22	19	23	20	17	23	19	15	23	17	14	23	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	15	11
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	27	26	26	26	22	25	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	29	29	29	29	29	28	29	29	25	29	28	22	28	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	13	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15	15	15	12	15	15	11	15	14	15			
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	15	15	15	11	15	15	11	15	13	15	16	12	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	13	19	14	12	19	13	10
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	22	22	22	22	22	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	16
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15	15	12	13	15	16	11	13	14	10
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	15	16	11	13	14
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	15	15	12	13	14	16	12	12	14	10	11	12	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	16	19	17	14	19	15	12	19	13	11
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	17	14	19	15	12	19	13	10	19	11	14	17	15	12	15	13	11
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	22	22	22	19	21	21	17	20	19	15	19	17	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	15	12	11	13			
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13	17	17	16	11	17	14	15	17	12
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	17	13	17	16	11	17	13	14	16	12	12	14	15	11	12	14	10	8
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	15	16	11	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	16	12	17	13	15	16	11	13	13	15	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	19	15	21	16	13	20	14	12	20	12	10	19	11	14
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	20	17	21	19	15	21	17	14	21	14	12	21	12	15	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	22	20	16	20	18	14	18	16	12	16	14	11
			Exposed	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	11	13	12	14	11	16	12	15	14	11

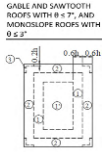
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

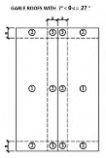
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

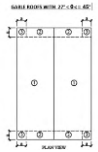
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

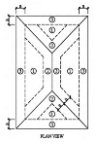












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

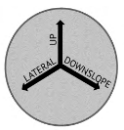
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

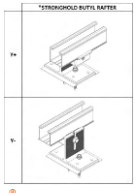
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	55	76	67	44	72	60	38	69	50	34	66	42	30
			Exposed	86	86	77	86	83	73	86	80	70	86	76	67	83	74	63	80	71	54	78	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	84	74	86	81	72	86	78	69	83	73	60	78	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	86	84	74	86	80	71	86	77	68	84	73	63	81	71	53	77	68	45	75	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	81	87	84	78	87	81	75	87	75	70	86	71	65	81	67	50	77	55	41	73	44	36	70	38	32
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	63	83	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	82	87	86	79	87	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	87	87	85	87	87	82	87	85	78	87	82	75	84	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	59	79	70	51	74	66	41	70	52	35	66	43	30	55	37	26	46	33	23	40	29	21
			Exposed	85	75	66	81	72	57	78	69	48	75	66	42	72	59	38	70	52	34	67	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	67	82	72	58	79	69	50	76	67	43	71	53	36	67	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	82	72	58	78	69	47	75	66	41	72	56	37	69	47	33	67	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	87	87	82	87	85	79	87	81	75	87	78	72	87	75	69	87	72	67	85	69	60	79	62	44	74	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	87	75	69	87	71	66	83	68	55	80	65	46	77	54	40	74	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	77	86	80	74	83	77	71	80	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	86	80	74	82	77	70	78	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	86	83	73	86	79	70	86	76	67	82	73	60	79	70	51	76	68	45	74	64	40	69	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	79	70	51	76	67	43	73	60	38	70	52	35	67	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	86	80	70	86	76	67	83	73	60	80	70	50	76	67	42	73	61	39	71	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	76	67	42	73	58	38	70	48	34	67	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	87	83	76	87	79	73	87	75	70	87	72	67	85	69	59	81	67	50	79	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	84	69	59	81	66	48	77	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	87	87	81	87	84	77	87	81	74	83	78	71	80	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	80	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
10	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	55	76	67	44	72	60	38	69	50	34	66	42	30
			Exposed	81	80	77	81	81	73	81	80	70	81	76	67	81	74	63	80	71	54	78	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	72	81	78	69	81	73	60	78	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	81	81	74	81	80	71	81	77	68	81	73	63	81	71	53	77	68	45	75	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	84	81	75	84	75	70	84	71	65	81	67	50	77	55	41	73	44	36	70	38	32
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	63	83	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	86	86	85	86	86	82	86	85	78	86	82	75	84	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	81	81	78	81	81	72	81	78	69	81	75	66	81	72	59	79	70	51	74	66	41	70	52	35	66	43	30	55	37	26	46	33	23	40	29	21	36	26	21
			Exposed	81	75	66	81	72	57	78	69	48	75	66	42	72	59	38	70	52	34	67	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	67	81	72	58	79	69	50	76	67	43	71	53	36	67	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	81	72	58	78	69	47	75	66	41	72	56	37	69	47	33	67	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	84	84	82	84	84	79	84	81	75	84	78	72	84	75	69	84	72	67	84	69	60	79	62	44	74	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	84	75	69	84	71	66	83	68	55	80	65	46	77	54	40	74	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	86	86	86	86	86	83	86	86	80	86	83	77	86	80	74	83	77	71	80	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	86	80	74	82	77	70	78	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	55	76	67	44	72	60	38	69	50	34	66	42	30
			Exposed	81	80	77	81	81	73	81	80	70	81	76	67	81	74	63	80	71	54	78	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	72	81	78	69	81	73	60	78	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	81	81	74	81	80	71	81	77	68	81	73	63	81	71	53	77	68	45	75	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	84	81	75	84	75	70	84	71	65	81	67	50	77	55	41	73	44	36	70	38	32
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	63	83	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	86	86	85	86	86	82	86	85	78	86	82	75	84	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	81	81	78	81	81	72	81	78	69	81	75	66	81	72	59	79	70	51	74	66	41	70	52	35	66	43	30	55	37	26	46	33	23	40	29	21	36	26	21
			Exposed	81	75	66	81	72	57	78	69	48	75	66	42	72	59	38	70	52	34	67	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	67	81	72	58	79	69	50	76	67	43	71	53	36	67	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	81	72	58	78	69	47	75	66	41	72	56	37	69	47	33	67	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	84	84	82	84	84	79	84	81	75	84	78	72	84	75	69	84	72	67	84	69	60	79	62	44	74	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	84	75	69	84	71	66	83	68	55	80	65	46	77	54	40	74	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	86	86	85	86	86	82	86	85	78	86	82	75	84	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	55	76	67	44	72	60	38	69	50	34	66	42	30
			Exposed	81	80	77	81	81	73	81	80	70	81	76	67	81	74	63	80	71	54	78	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	72	81	78	69	81	73	60	78	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	81	81	74	81	80	71	81	77	68	81	73	63	81	71	53	77	68	45	75	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	84	81	75	84	75	70	84	71	65	81	67	50	77	55	41	73	44	36	70	38	32
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	63	83	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	86	86	85	86	86	82	86	85	78	86	82	75	84	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	55	73	67	44	72	60	38	69	50	34	66	42	30
			Exposed	73	73	73	73	73	73	73	73	70	73	73	67	73	73	63	73	71	54	73	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	60	73	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	73	73	73	73	73	71	73	73	68	73	73	63	73	71	53	73	68	45	73	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	75	70	78	71	65	78	67	50	77	55	41	73	44	36	70	38	32
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	63	78	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	81	81	81	81	81	81	81	81	78	81	81	75	81	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	59	73	70	51	73	66	41	70	52	35	66	43	30	55	37	26	46	33	23	40	29	21
			Exposed	73	73	66	73	72	57	73	69	48	73	66	42	72	59	38	70	52	34	67	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	67	73	72	58	73	69	50	73	67	43	71	53	36	67	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	73	72	58	73	69	47	73	66	41	72	56	37	69	47	33	67	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	67	78	69	60	78	62	44	74	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	78	75	69	78	71	66	78	68	55	78	65	46	77	54	40	74	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	80	81	81	74	81	77	71	80	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	81	80	74	81	77	70	78	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	60	73	70	51	73	68	45	73	64	40	69	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	73	70	51	73	67	43	73	60	38	70	52	35	67	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	73	73	70	73	73	67	73	73	60	73	70	50	73	67	42	73	61	39	71	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	73	67	42	73	58	38	70	48	34	67	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	79	79	76	79	79	73	79	75	70	79	72	67	79	69	59	79	67	50	79	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	79	69	59	79	66	48	77	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	78	71	80	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	80	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22

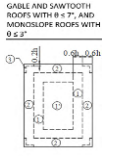
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

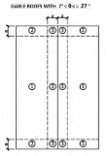
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.









UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

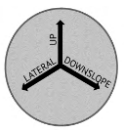
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

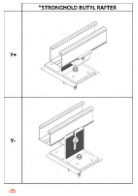
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	44	65	60	38	65	50	34	65	42	30
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	54	65	65	47	65	61	39	65	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	60	66	66	60	66	60	39	66	48	34	66	46	30	54	36	26
			Exposed	66	66	66	66	66	66	66	66	66	66	66	63	66	66	53	66	66	45	66	65	40	66	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	71	65	73	67	50	73	55	41	73	44	36	70	38	32
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	63	73	68	54	73	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	70	76	72	66	72	68	53	69	63	43	65	52	38
			Exposed	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	70	76	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	51	65	65	41	65	52	35	65	43	30	55	37	26	46	33	23	40	29	21			
			Exposed	65	65	65	65	65	57	65	65	48	65	65	42	65	59	38	65	52	34	65	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	58	66	66	50	66	66	43	66	53	36	66	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	66	66	58	66	66	47	66	66	41	66	56	37	66	47	33	66	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	60	73	62	44	73	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	73	73	69	73	71	66	73	68	55	73	65	46	73	54	40	73	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	76	76	74	76	76	70	76	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	60	65	65	51	65	65	45	65	64	40	65	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	65	65	51	65	65	43	65	60	38	65	52	35	65	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	66	66	66	66	66	66	66	66	60	66	66	50	66	66	42	66	61	39	66	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	66	66	42	66	58	38	66	48	34	66	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	59	74	67	50	74	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	74	69	59	74	66	48	74	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	78	71	78	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	78	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	44	63	60	38	63	50	34	63	42	30
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	54	63	63	47	63	63	41	63	48	33	62	40	29	51	35	25	43	31	22	38	28	30			
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	46	63	60	39	63	48	34	63	40	30	54	36	26
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	53	63	63	45	63	63	40	63	49	34	63	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	50	68	55	41	68	44	36	68	38	32
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	54	68	56	41	68	43	35	68	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	72	72	66	70	68	53	69	63	43	65	52	38
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	70	73	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	51	63	63	41	63	52	35	63	43	30	55	37	26	46	33	23	40	29	21
			Exposed	63	63	63	63	63	57	63	63	48	63	63	42	63	59	38	63	52	34	63	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	50	63	63	43	63	53	36	63	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	63	63	58	63	63	47	63	63	41	63	56	37	63	47	33	63	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	60	68	62	44	68	47	37	68	39	32	66	34	28	57	30	25	47	27	22
			Exposed	68	68	68	68	68	66	68	68	55	68	65	46	68	54	40	68	46	37	68	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	71	70	60	69	66	46	66	53	39	52	43	34	42	38	30	37	33	27			
			Exposed	73	73	73	73	73	70	73	73	67	73	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	60	65	65	51	65	65	45	65	64	40	65	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	65	65	51	65	65	43	65	60	38	65	52	35	65	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	66	66	66	66	66	66	66	66	60	66	66	50	66	66	42	66	61	39	66	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	66	66	42	66	58	38	66	48	34	66	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	67	70	69	59	70	67	50	70	60	43	70	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	70	69	59	70	66	48	70	56	41	70	46	37	70	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	74	71	74	74	69	74	72	66	73	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	74	74	68	74	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	44	58	58	38	58	50	34	58	42	30
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	47	58	58	39	58	48	33	58	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	46	59	59	39	59	48	34	59	40	30	54	36	26
			Exposed	59	59	59	59	59	59	59	59	59	59	59	53	59	59	45	59	59	45	59	59	40	59	49	34	59	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	50	63	55	41	63	44	36	63	38	32
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	54	63	63	43	63	63	41	63	43	35	63	43	35	63	43	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	72*	66	73*	66	53	65	63	43	63	52	38
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	73*	73*	69	73*	73*	67	73*	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25			
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	41	58	52	35	58	43	30	55	37	26	46	33	23	40	29	21
			Exposed	58	58	58	58	58	57	58	58	48	58	58	42	58	58	38	58	52	34	58	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	50	59	59	43	59	53	36	59	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	59	59	58	59	59	47	59	59	41	59	56	37	59	47	33	59	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	62	44	63	47	37	63	39	32	62	34	28	57	30	25	47	27	22
			Exposed	63	63	63	63	63	63	63	63	55	63	63	46	63	54	40	63	46	37	63	41	34	63	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	73*	69	73*	72*	67	60	65	65	46	63	53	39	52	43
			Exposed	73*	73*	73*	73*	73*	69	73*	73*	67	73*	69	62	72*	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	60	61	61	51	61	61	45	61	61	40	61	50	34	61	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	61	61	51	61	61	43	61	60	38	61	52	35	61	45	31	61	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	61	61	61	61	61	61	61	61	60	61	61	50	61	61	42	61	61	39	61	52	35	61	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	61	61	42	61	58	38	61	48	34	61	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	59	66	66	50	66	60	43	66	45	36	65	37	31	63	32	27	52	28	23	43	25	21	38	22	28
			Exposed	66	66	59	66	66	48	66	56	41	66	46	37	66	41	34	66	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	70	70	66	69	69	58	67	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	71	71	68	71	71	65	71	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22

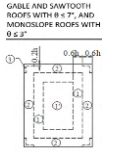
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

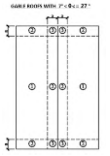
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

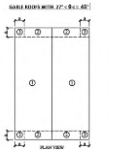
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

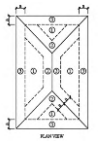












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

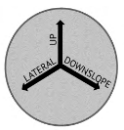
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

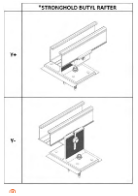
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	34	54	42	30			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	54	39	54	48	33	54	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	54	39	54	48	34	54	40	30	54	36	26
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	45	54	54	40	54	49	34	54	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	60	60	55	41	60	44	36	59	38	32
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54	60	56	41	60	43	35	60	37	30	60	32	27	52	28	23	43	25	21
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	53	64*	63*	43	62*	52	38			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	41	54	52	35	54	43	30	54	41	30	46	33	23	40	29	21
			Exposed	54	54	54	54	54	54	54	54	48	54	54	42	54	54	38	54	52	34	54	45	32	54	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	42	31	54	36	27	43	31	23	38	28	21	34	25	28
			Exposed	54	54	54	54	54	47	54	54	41	54	54	37	54	47	33	54	41	30	54	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	47	37	59	39	32	58	34	28	57	30	25	47	27	22
			Exposed	60	60	60	60	60	60	60	60	55	60	60	46	60	54	40	60	46	37	60	41	34	60	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	60	62*	62*	46	62*	53	39	52	43	34	42	38	30	37	33	27
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	53	65*	65*	45	65*	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	56	56	45	56	56	40	56	50	34	56	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	56	56	51	56	56	43	56	56	38	56	52	35	56	45	31	56	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	50	57	57	42	57	57	39	57	52	35	57	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	57	57	42	57	57	38	57	48	34	57	41	31	57	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	50	62	60	43	62	45	36	61	37	31	60	32	27	52	28	23	43	25	21	38	22	28
			Exposed	62	62	59	62	62	48	62	56	41	62	46	37	62	41	34	62	37	31	62	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	69*	69*	69*	66	68*	68*	58	68*	63	44	61	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	70*	70*	69*	70*	70*	65	70*	69*	54	70*	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	38	50	50	34	50	42	30
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	39	50	48	33	50	40	29	50	35	25	43	31	22	38	28	30
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	50	39	50	48	34	50	40	30	50	36	26
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	34	50	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	55	59*	59*	47	58*	38	32
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	54	59*	56*	41	59*	43	35	59*	37	30	59*	32	27	52	28	23	43	25	21
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	61*	61*	60*	60*	54*	58*	58*	43
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	61*	42	60*	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	35	50	43	30	50	37	26	46	33	23	40	29	21
			Exposed	50	50	50	50	50	50	50	50	48	50	50	42	50	50	38	50	50	34	50	45	32	50	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	36	50	42	31	50	36	27	43	31	23	38	28	21	34	25	28
			Exposed	50	50	50	50	50	47	50	50	41	50	50	37	50	47	33	50	41	30	50	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	44	59*	47	37	59*	39	32	58*	34	28	56*	30	25	47	27	22
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	55	59*	59*	46	59*	54	40	59*	46	37	59*	41	34	59*	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	60*	60*	59*	59*	46	57*	53	39	52	43	34	42	38	30	37	33	27
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	53	62*	62*	45	62*	57*	40	54*	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26			
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	51	52	52	45	52	52	40	52	50	34	52	41	29	52	36	25	43	31	22	38	27	29	33	24	26			
			Exposed	52	52	51	52	52	43	52	52	38	52	52	35	52	45	31	52	41	29	52	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	50	53	53	42	53	53	39	53	52	35	53	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	53	53	42	53	53	38	53	48	34	53	41	31	53	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	45	59	59	46	57*	53	39	52	43	34	42	38	30	37	33	27
			Exposed	59	59	59	59	59	48	59	56	41	59	46	37	59	41	34	59	37	31	59	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	30			
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	59*	60*	60*	44	61*	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	54	64*	64*	46	64*	56	40	61*	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	47	34	47	42	30
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	35	43	31	22	38	28	30
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	39	47	47	34	47	40	30	47	36	26
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	55*	55*	41	55*	44	36	55*	38	32
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	41	55*	43	35	55*	37	30	55*	32	27	52*	28	23	43	25	21
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	53*	56*	56*	43	55*	52*	38
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	42	58*	49*	37	48*	40	32	40	36	28	35	32	25
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	35	47	43	30	47	37	26	46	33	23	40	29	21
			Exposed	47	47	47	47	47	47	47	47	47	47	47	42	47	47	38	47	47	34	47	45	32	47	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	36	47	42	31	47	36	27	43	31	23	38	28	21	34	25	28
			Exposed	47	47	47	47	47	47	47	47	41	47	47	37	47	47	33	47	41	30	47	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	44	55*	47	37	55*	39	32	55*	34	28	54*	30	25	47	27	22
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	46	55*	54*	40	55*	46	37	55*	41	34	55*	34	28	55*	29	24	44	26	21	38	22	28	33	30	25	30	26	22			
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	46	55*	53*	39	52*	43	34	42	38	30	37	33	27
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	53*	58*	58*	45	58*	56*	40	53*	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26			
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	45	49	49	40	49	49	34	49	41	29	49	36	25	43	31	22	38	27	29	33	24	26
			Exposed	49	49	49	49	49	43	49	49	38	49	49	35	49	45	31	49	41	29	49	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	40	50	50	35	50	40	30	50	40	30	50	35	26	41	30	22
			Exposed	50	50	42	50	50	38	50	48	34	50	41	31	50	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	43	58*	58*	45	58*	45	36	58*	37	31	57*	32	27	52	28	23
			Exposed	58*	58*	58*	58*	58*	48	58*	56*	41	58*	46	37	58*	41	34	58*	37	31	58*	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	59*	59*	58*	58*	58*	44	56*	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	61*	61*	61*	61*	61*	54*	61*	61*	46	61*	56*	40	60*	49	37	52*	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22			

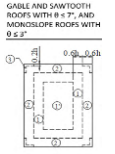
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

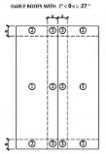
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

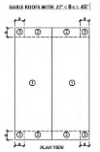
18 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

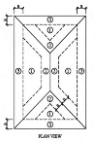












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

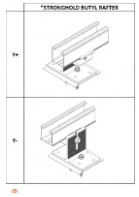
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	38	44	44	34	44	42	30			
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	33	44	40	29	44	35	25	43	31	22	38	28	30
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	39	45	45	34	45	40	30	45	36	26
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	34	45	39	29	45	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41	49*	44	36	49*	38	32
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41	49*	43	35	49*	37	30	49*	32	27	49*	28	23	43	25	21
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44*	52*	52*	38
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43*	52*	48*	37	47*	40	32	40	36	28	35	32	25
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	41	44	44	35	44	43	30	44	37	26	44	33	23	40	29	21
			Exposed	44	44	44	44	44	44	44	44	44	44	44	42	44	44	38	44	44	34	44	44	32	44	38	27	44	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	36	45	42	31	45	36	27	43	31	23	38	28	21	34	25	28
			Exposed	45	45	45	45	45	45	45	45	41	45	45	37	45	45	33	45	41	30	45	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44	49*	47*	37	49*	39	32	49*	34	28	49*	30	25	47*	27	22
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	40	49*	46*	37	49*	41	34	49*	34	28	49*	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	46*	52*	52*	39	52*	43*	34	42	38	30	37	33	27
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45*	52*	52*	40	52*	44*	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	40	47	47	34	47	41	29	47	36	25	43	31	22	38	27	29	33	24	26
			Exposed	47	47	47	47	47	43	47	47	38	47	47	35	47	45	31	47	41	29	47	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	39	47	47	35	47	40	30	47	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	47	47	47	42	47	47	47	47	34	47	41	31	47	38	28	47	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	55*	55*	43	55*	45	36	55*	37	31	54*	32	27	52*	28	23	43	25	21	38	22	28
			Exposed	55*	55*	55*	55*	55*	48	55*	55*	41	55*	46	37	55*	41	34	55*	37	31	55*	34	28	53*	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	44	54*	50*	37	48*	41	32	40	36	28	35	31	25	31	28	22
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	46	58*	56*	40	58*	49*	37	52*	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	42	30			
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	33	42	42	29	42	35	25	42	31	22	38	28	30
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	34	42	40	30	42	36	26
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	42	39	29	42	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	41*	47*	44*	36	47*	38	32
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	43*	35	47*	37	30	47*	32	27	47*	28	23	43*	25	21
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	38
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	37	47*	40*	32	40*	36	28	35	32	25
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	35	42	42	30	42	41	26	42	33	23	40	29	21
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	42	32	42	38	27	42	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	36	42	42	31	42	36	27	42	31	23	38	28	21	34	25	28
			Exposed	42	42	42	42	42	42	42	42	41	42	42	37	42	42	33	42	41	30	42	38	28	42	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	37	47*	39	32	47*	34	28	47*	30	25	47*	27	22
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	46*	47*	47*	40	47*	46*	37	47*	41*	34	47*	34	28	47*	29	24	44*	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	38
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	40*	47*	43*	34	41*	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	34	44	41	29	44	36	25	43	31	22	38	27	29	33	24	26
			Exposed	44	44	44	44	44	43	44	44	38	44	44	35	44	44	31	44	41	29	44	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	39	45	45	35	45	40	30	45	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	45	45	42	45	45	38	45	45	34	45	41	31	45	38	28	45	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43	49*	45*	36	49*	37	31	49*	32	27	49*	28	23	43	25	21	38	22	28
			Exposed	49*	49*	49*	49*	49*	48*	49*	49*	41	49*	46*	37	49*	41	34	49*	37	31	49*	34	28	49*	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44*	52*	50*	37	48*	41	32	40	36	28	35	31	25	31	28	22
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	46*	52*	52*	40	52*	49*	37	52*	43*	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22

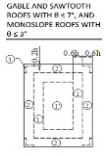
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

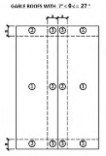
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

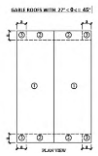
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

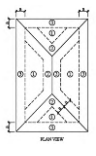












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

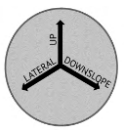
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

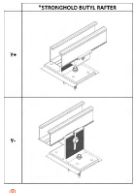
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	102	89	102	98	85	102	91	79	98	85	73	92	80	69	86	75	64	82	71	57	78	68	50
			Exposed	102	102	92	102	101	88	102	96	83	102	92	80	102	88	76	98	84	73	94	81	70	87	76	65	81	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	95	82	102	87	75	95	81	70	88	75	65	82	71	57	77	67	50	73	60	44
			Exposed	102	102	89	102	98	84	102	93	80	102	88	76	99	84	73	94	80	70	90	77	67	83	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	83	103	84	77	99	78	71	93	73	67	87	69	60	83	65	54
			Exposed	103	103	99	103	103	93	103	97	88	103	92	84	103	87	80	103	83	76	101	80	73	93	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	64
			Exposed	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	102	102	95	102	102	90	102	99	85	102	94	82	102	90	78	100	86	75	96	83	72	89	77	67	83	72	59	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	102	90	78	99	86	74	94	82	71	90	78	68	86	75	64	83	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	102	102	92	102	101	87	102	95	82	102	90	78	102	86	75	97	82	71	93	79	68	85	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	102	86	74	96	81	71	90	77	67	86	74	62	82	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	103	103	102	103	103	96	103	100	91	103	95	86	103	90	82	103	86	78	103	82	75	96	76	69	89	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	103	90	82	103	85	77	102	80	73	97	76	70	92	73	67	88	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	103	103	103	103	103	103	103	103	98	103	102	93	103	98	88	103	93	85	98	90	81	90	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	103	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	102	101	87	102	95	83	102	91	79	100	87	75	96	83	72	92	80	69	88	77	67	82	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	96	83	72	91	79	68	87	75	65	83	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	35	39
		7-20	Interior	102	97	84	102	92	79	102	87	75	97	83	72	92	79	68	88	75	65	84	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	92	79	68	87	74	64	82	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	33	35	39	29	47	34	26
		20-27	Interior	103	102	92	103	96	87	103	91	83	103	86	78	103	82	75	99	78	72	95	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	103	82	75	98	77	71	93	74	67	89	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	91	79	95	85	73	92	80	69	86	75	64	82	71	57	78	68	50
			Exposed	95	95	92	95	95	88	95	95	83	95	92	80	95	88	76	95	84	73	94	81	70	87	76	65	81	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	95	82	96	87	75	95	81	70	88	75	65	82	71	57	77	67	50	73	60	44
			Exposed	96	96	89	96	96	84	96	93	80	96	88	76	96	84	73	94	80	70	90	77	67	83	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	83	100	84	77	99	78	71	93	73	67	87	69	60	83	65	54
			Exposed	100	100	99	100	100	93	100	97	88	100	92	84	100	87	80	100	83	76	100	80	73	93	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	64
			Exposed	102	102	102	102	102	100	102	102	95	102	100	90	102	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	82	95	90	78	95	86	75	95	83	72	89	77	67	83	72	59	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	95	90	78	95	86	74	94	82	71	90	78	68	86	75	64	83	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	96	96	92	96	96	87	96	95	82	96	90	78	96	86	75	96	82	71	93	79	68	85	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	96	86	74	96	81	71	90	77	67	86	74	62	82	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	100	100	100	100	100	96	100	100	91	100	95	86	100	90	82	100	86	78	100	82	75	96	76	69	89	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	100	90	82	100	85	77	100	80	73	97	76	70	92	73	67	88	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	98	88	102	93	85	98	90	81	90	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	102	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	95	95	87	95	95	83	95	91	79	95	87	75	95	83	72	92	80	69	88	77	67	82	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	95	83	72	91	79	68	87	75	65	83	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	35	39
		7-20	Interior	96	96	84	96	92	79	96	87	75	96	83	72	92	79	68	88	75	65	84	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	92	79	68	87	74	64	82	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	33	35	39	29	47	34	26
		20-27	Interior	101	101	92	101	96	87	101	91	83	101	86	78	101	82	75	99	78	72	95	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	101	82	75	98	77	71	93	74	67	89	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	79	86	85	73	86	80	69	86	75	64	82	71	57	78	68	50
			Exposed	86	86	86	86	86	86	86	86	83	86	86	80	86	86	76	86	84	73	86	81	70	86	76	65	81	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	87	75	87	81	70	87	75	65	82	71	57	77	67	50	73	60	44
			Exposed	87	87	87	87	87	87	87	87	80	87	87	76	87	84	73	87	80	70	87	77	67	83	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	83	92	84	77	92	78	71	92	73	67	87	69	60	83	65	54
			Exposed	92	92	92	92	92	92	92	92	88	92	92	84	92	87	80	92	83	76	92	80	73	92	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	92	83	93	86	77	87	80	73	81	76	69	77	72	64
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	86	75	86	83	72	86	77	67	83	72	59	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	86	86	78	86	86	74	86	82	71	86	78	68	86	75	64	83	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	87	87	87	87	87	87	87	87	82	87	87	78	87	86	75	87	82	71	87	79	68	85	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	87	86	74	87	81	71	87	77	67	86	74	62	82	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	92	92	92	92	92	92	92	92	91	92	92	86	92	90	82	92	86	78	92	82	75	92	76	69	89	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	92	90	82	92	85	77	92	80	73	92	76	70	92	73	67	88	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	93	96	96	88	96	93	85	96	90	81	90	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	96	96	88	96	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	80	69	86	77	67	82	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	86	83	72	86	79	68	86	75	65	83	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	35	39
		7-20	Interior	87	87	84	87	87	79	87	87	75	87	83	72	87	79	68	87	75	65	84	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	87	79	68	87	74	64	82	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	33	35	39	29	47	34	26
		20-27	Interior	94	94	92	94	94	87	94	91	83	94	86	78	94	82	75	94	78	72	94	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	94	82	75	94	77	71	93	74	67	89	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	97	97	97	97	94	97	97	89	97	94	85	97	90	81	93	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37	
			Exposed	97	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37

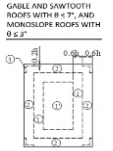
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

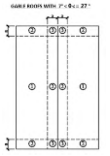
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

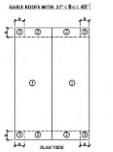
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

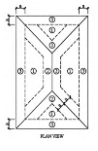












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

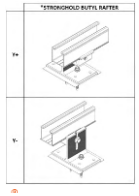
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																										
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																									
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	80	80	75	64	80	71	57	78	68	50			
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	76	65	80	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	71	57	77	67	50	73	60	44
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	77	67	80	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	84	77	87	78	71	87	73	67	87	69	60	83	65	54
			Exposed	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	83	76	87	80	73	87	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	86	77	87	80	73	81	76	69	77	72	64
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	77	67	80	72	57	78	68	51	74	63	44	70	55	39	66	49	35		
			Exposed	80	80	78	80	80	74	80	80	71	80	78	68	80	75	64	80	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	71	80	79	68	80	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	80	80	74	80	80	71	80	77	67	80	74	62	80	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	82	87	87	82	87	86	78	87	82	75	87	76	69	87	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	87	87	82	87	85	77	87	80	73	87	76	70	87	73	67	87	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	85	90	90	81	89	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	90	90	88	90	90	84	90	88	79	90	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	80	69	80	77	67	80	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	80	80	72	80	79	68	80	75	65	80	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	35	39
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	72	80	79	68	80	75	65	80	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	80	79	68	80	74	64	80	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	88	88	88	88	88	87	88	88	83	88	86	78	88	82	75	88	78	72	88	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	88	82	75	88	77	71	88	74	67	88	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	90	81	92	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	92	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	64	78	71	57	78	68	50
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	76	65	78	71	56	76	67	48	72	59	42	68	52	37	64	46	50			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	71	57	77	67	50	73	60	44
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	60	82	65	54
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	76	82	80	73	82	74	67	82	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	77	84	80	73	81	76	69	77	72	64
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	58	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	78	78	78	78	78	74	78	78	71	78	78	68	78	75	64	78	72	58	78	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	71	78	78	68	78	73	60	78	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	78	78	74	78	78	71	78	77	67	78	74	62	78	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	D	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	64	78	71	57	78	68	50
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	56	76	67	48	72	59	42	68	52	37	64	46	50			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	71	57	77	67	50	73	60	44
			Exposed	78	78	78	78	78	74	78	78	71	78	78	68	78	75	64	78	72	58	78	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	60	82	65	54
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	76	82	80	73	82	74	67	82	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	77	84	80	73	81	76	69	77	72	64
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	64	74	71	57	74	68	50
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	56	74	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	71	57	75	67	50	73	60	44
			Exposed	75	75	75	75	75	75	75	75	75	75	75	73	75	75	70	75	75	70	75	75	67	75	71	57	75	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	71	78	73	67	78	69	60	78	65	54
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	74	78	78	67	78	74	67	78	74	61	78	67	54	78	62	51	76	54	40
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	77	81	80	73	79	76	69
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	79	83	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	67	74	72	59	74	68	51	74	63	44	70	55	39	66	49	35
			Exposed	74	74	74	74	74	74	74	74	71	74	74	68	74	74	64	74	72	58	74	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	68	75	73	60	75	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	75	75	74	75	75	71	75	75	67	75	74	62	75	70	56	75	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	76	69	78	70	63	78	66	54	77	57	47	74	51	42	70	45	37
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	62	78	67	57	78	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	81	75	80	77	70	77	73	65	72	68	57	68	63
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	72	76	76	69	76	76	67	76	72	57	76	67	49	72	60	42	68	52	37	63	46	49	56	41	44			
			Exposed	76	76	72	76	76	68	76	75	65	76	72	58	76	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	35	39
		7-20	Interior	76	76	76	76	76	76	75	76	76	72	76	76	68	76	75	65	76	72	60	76	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39		
			Exposed	76	76	68	76	74	64	76	71	57	76	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	72	80	75	69	80	69	61	80	63	52	77	55	45	72	48	40	68	42	35	64	37	47		
			Exposed	80	80	75	80	77	71	80	74	67	80	70	62	80	67	57	80	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	83	82	74	81	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	84	84	81	84	84	77	84	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37

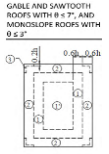
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

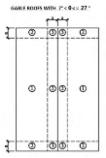
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

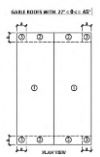
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

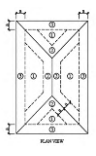












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

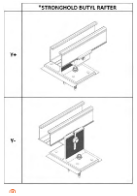
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	64	69	69	57	69	68	50
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	56	69	67	48	69	59	42	68	52	37	64	46	50
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	57	70	67	50	70	60	44
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	57	70	66	49	70	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	73	67	75	69	60	75	65	54
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	74	67	75	69	59	75	62	51	75	54	45	72	48	40	69	42	35
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	64
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	51	69	63	44	69	55	39	66	49	35
			Exposed	69	69	69	69	69	69	69	69	69	68	69	69	64	69	69	58	69	69	53	69	69	53	69	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	60	70	68	52	70	61	45	69	53	39	64	47	35	57	42	46
			Exposed	70	70	70	70	70	70	70	70	67	70	70	62	70	70	56	70	67	51	70	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	91
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	63	75	66	54	74	57	47	73	51	42	70	45	37
			Exposed	75	75	75	75	75	75	75	75	73	75	75	70	75	73	67	75	70	62	75	67	57	75	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	73	65	72	68	57	68	63	50	63	56	45
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	72	80	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44		
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	72	57	73	67	49	72	60	42	68	52	37	63	46	49	56	41	44	
			Exposed	73	73	72	73	73	68	73	73	65	73	72	58	73	69	53	73	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	99	37	41	29
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	68	73	73	65	73	72	60	73	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39			
			Exposed	73	73	68	73	73	64	73	71	57	73	68	52	73	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	99	35	39	29	47	34	26
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	72	77	75	69	77	69	61	76	63	52	75	55	45	72	48	40	68	42	35	64	37	47	
			Exposed	77	77	75	77	77	71	77	74	67	77	70	62	77	67	57	77	62	52	77	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	91
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	80	80	74	78	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37	
			Exposed	81	81	81	81	81	81	81	81	73	81	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	57	65	65	50
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	48	65	59	42	65	52	37	64	46	50
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	50	65	60	44
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	49	65	57	43	65	50	37
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	60	72	65	54
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	59	72	62	51	72	54	45	72	48	40	69	42	35
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	75	75	73	74	74	69	73	72	64			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	57	65	65	50
			Exposed	65	65	65	65	65	65	65	65	65	64	65	65	58	65	65	53	65	63	45	65	54	39	64	47	33	56	41	44	50	36	39	44	49	35					
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	50	65	60	44
			Exposed	65	65	65	65	65	65	65	65	65	62	65	65	56	65	65	51	65	63	47	65	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	91		
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	63	72	62	51	72	54	47	70	51	42	68	45	37
			Exposed	72	72	72	72	72	72	72	72	70	72	72	67	72	70	62	72	67	57	72	58	48	72	50	41	69	43	36	64	38	47	56	33	42	50	45	37			
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	75	74	74	70	73	73	65	72	68	57	68	63	50	63	56	45
			Exposed	77	77	77	77	77	77	77	77	76	77	77	72	77	77	70	77	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44			
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	57	68	67	49	68	60	42	68	52	37	63	46	49	56	41	44	
			Exposed	68	68	68	68	68	68	68	68	65	68	68	58	68	68	53	68	67	48	68	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	99	37	41	29
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	60	68	67	50	68	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	68	68	68	68	68	64	68	68	57	68	68	52	68	63	47	68	58	43	68	53	39	61	45	50	52	38	43	45	50	37	40	44	99	35	39	29	47	34	26
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	69	61	74	63	52	73	55	45	72	48	40	68	42	35	64	37	47
			Exposed	74	74	74	74	74	71	74	74	67	74	70	62	74	67	57	74	62	52	74	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	91
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	78	77	77	74	76	76	69	74	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	79	79	79	79	79	79	73	79	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37		
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	50			
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	48	61	59	42	61	52	37	61	46	50
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	50	61	60	44
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	49	61	57	43	61	50	37	60	44	50	54	39	44
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	60	68	65	54
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	59	68	62	51	68	54	45	68	48	40
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	81*	81*	74	73	73	73	72	72	69	70	70	64
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73	79*	75	68	74	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	61	44	61	55	39	61	49	35
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	45	61	54	39	61	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	52	61	61	45	61	53	39	61	47	35	57	42	46
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	56	61	61	51	61	61	47	61	54	40	61	46	34	54	40	45	47	35	39	42	46	34	37	41	91		
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	66	54	67	57	47	66	51	42	65	45	37
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	62	68	67	57	68	58	48	68	50	41	68	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	83*	83*	73	72	72	70	71	71	65	69	68	57	67	63	50	63	56	45
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	75	79*	79*	72	79*	75	70	79*	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	57	64	64	49	64	60	42	64	52	37	63	46	49	56	41	44
			Exposed	64	64	64	64	64	64	64	64	64	58	64	64	53	64	64	48	64	62	44	64	53	37	62	45	49	54	39	42	47	34	37	41	46	99	37	41	29		
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	50	64	64	51	38	60	44	49	53	39	44	47	35
			Exposed	64	64	64	64	64	64	64	64	57	64	64	52	64	63	47	64	58	43	64	53	39	61	45	50	52	38	43	45	50	37	40	44	99	35	39	29	47	34	26
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	71	69	61	71	63	52	70	55	45	68	48	40	67	42	35	64	37	47	
			Exposed	71	71	71	71	71	71	67	71	70	62	71	67	57	71	62	52	71	57	47	71	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	91		
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	76	76	76	76	76	75	75	74	74	74	69	72	71	63	70	67	54	66	60	48	59	53	42	52	47	37			
			Exposed	77	77	77	77	77	77	73	77	77	70	76	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37		

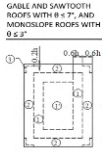
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

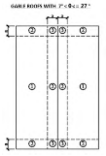
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

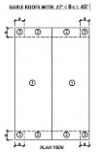
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

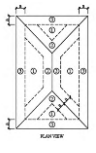












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

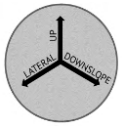
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

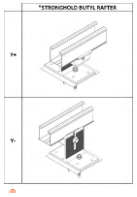
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	48	57	57	42	57	52	37	57	46	50
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	50	58	58	58	58	44
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	49	58	57	43	58	50	37	58	44	50	54	39	44
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	62	51	64	54	45	64	48	40	64	42	35
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	72*	71*	71*	64
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68	72*	71*	62	71*	67	54	66	60	48	59	53	42
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	51	57	57	57	44	57	55	39	57	49	35
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	45	57	54	39	57	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	52	58	58	45	58	53	39	58	47	35	57	42	46
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	51	58	58	47	58	54	40	58	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	54	64	57	47	64	51	42	63	45	37
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	57	64	58	48	64	50	41	64	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	74*	74*	74*	72*	72*	69	71*	71*	65	72*	66	57	65	63	50	63	56	45
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	73*	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	60	60	42	60	52	37	60	46	49	56	41	44
			Exposed	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	60	60	48	60	60	44	60	53	37	60	45	49	54	39	42	47	34	37	41	46	39	37	41	29
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	50	61	58	43	61	51	38	60	44	49	53	39	44	47	35	39
			Exposed	61	61	61	61	61	61	61	61	57	61	61	52	61	61	47	61	58	43	61	53	39	61	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	63	52	67	55	45	66	48	40	64	42	35	63	37	47
			Exposed	67	67	67	67	67	67	67	67	62	67	67	57	67	62	52	67	57	47	67	57	47	67	48	40	67	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	78*	78*	78*	73	72	72	69	70	70	63	68	67	54	66	60	48	59	53	42	52	47	37
			Exposed	79*	79*	79*	79*	79*	74	79*	79*	73	79*	74	70	79*	74	67	74	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	54	42	54	52	37	54	46	50
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	44
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	49	55	55	43	55	55	44	50	54	39	44
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	54	45	61	48	40	61	42	35
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	65*	65*	65*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62	68*	67*	54	66*	60	48	59	53	42
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	44	54	54	39	54	49	35
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	45	54	54	39	54	47	33	54	41	44	50	36	39	44	49	35
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	45	55	55	45	55	53	39	55	47	35	55	42	46
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	47	55	54	40	55	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	58	48	61	50	41	61	43	36	61	38	47	56	33	42
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54	61	57	47	61	51	42	60	45	37
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	65*	65*	65*	67*	67*	57	65*	64*	50
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	58	67*	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	49	57	57	42	57	52	37	57	46	49	56	41	44
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	57	44	57	53	37	57	45	49	54	39	42	47	34	37	41	46	39	37	41	29
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	58	43	58	51	38	58	44	49	53	39	44	47	35	39
			Exposed	58	58	58	58	58	58	58	58	57	58	58	52	58	58	47	58	58	43	58	53	39	58	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	63	52	64	55	45	63	48	40	62	42	35	61	37	47
			Exposed	64	64	64	64	64	64	64	64	62	64	64	57	64	62	52	64	57	47	64	48	40	64	41	34	61	36	45	53	47	39	47	42	35	42	37	31			
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	69	73*	71*	63	71*	66	54	64	60	48	59	53	42	52	47	37
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	72*	71*	62	72*	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37			

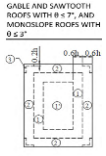
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

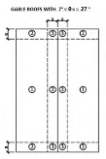
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

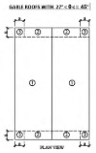
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

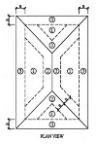












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

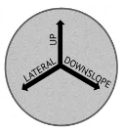
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

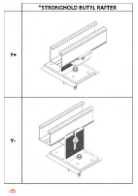
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	80	71	81	77	68	81	72	59	77	68	46	73	61	37	69	50	32	66	42	28	56	35	25
			Exposed	81	81	73	81	79	70	81	76	67	81	73	61	80	70	52	77	68	45	74	65	39	69	51	32	65	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	80	70	51	75	66	38	71	50	32	67	40	28	56	33	25	45	30	22
			Exposed	81	81	71	81	77	68	81	74	64	81	71	53	78	68	44	75	64	38	72	54	34	67	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	73	67	82	68	54	78	59	42	74	46	34	70	37	30	67	32	27
			Exposed	82	82	78	82	80	74	82	77	71	82	73	68	82	70	64	82	68	53	79	64	45	74	47	34	70	36	29	66	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	77	82	78	72	79	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	82	82	82	82	82	79	82	82	75	82	78	72	81	75	69	78	73	67	75	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	81	81	75	81	81	78	69	81	75	66	81	72	57	79	69	49	76	67	43	71	55	34	67	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	81	72	57	78	69	47	75	66	40	72	57	35	69	49	32	67	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	58	80	69	49	76	67	41	74	60	36	69	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	79	69	48	76	66	40	72	56	34	69	46	31	67	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	82	82	80	82	82	76	82	78	72	82	75	69	82	72	67	82	69	59	81	67	50	76	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	82	72	67	82	69	56	80	66	46	77	54	38	74	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	~~27~~	32	~~28~~	~~23~~	28	~~25~~	~~21~~	25	~~22~~	~~18~~
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	72	66	72	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	82	77	71	79	73	68	76	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	~~28~~	23	21	~~25~~	20	~~28~~	~~22~~
	D	0-7	Interior	81	79	70	81	75	67	81	72	59	79	69	50	76	67	43	73	61	37	71	54	34	66	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	76	67	43	72	59	36	69	50	32	67	44	29	60	38	26	52	34	24	46	31	22	36	26	~~28~~	31	22	~~24~~	27	~~29~~	~~21~~	23	~~26~~	~~18~~	20	~~23~~	~~16~~	~~28~~	~~20~~	~~14~~
		7-20	Interior	81	77	68	81	73	61	80	70	50	77	67	42	74	60	35	71	51	32	68	43	30	57	34	25	43	29	21	34	~~25~~	~~28~~	30	22	~~25~~	26	~~29~~	~~22~~	23	~~26~~	~~19~~
			Exposed	73	60	35	70	49	32	67	40	28	59	35	26	50	31	23	42	29	21	36	26	~~29~~	30	22	~~25~~	26	~~29~~	~~21~~	22	~~25~~	~~18~~	20	~~22~~	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	82	80	74	82	76	70	82	73	67	82	70	60	81	67	50	78	60	42	75	50	36	70	37	30	66	31	26	54	27	22	43	24	20	36	21	~~26~~	32	~~28~~	~~23~~
			Exposed	81	67	49	77	57	40	74	47	34	71	39	31	68	34	28	66	31	26	58	28	23	44	24	20	35	21	~~26~~	30	~~27~~	~~22~~	26	~~24~~	~~19~~	23	~~21~~	~~17~~	21	~~18~~	~~15~~
		27-45	Interior	82	82	78	82	81	75	82	78	71	80	74	69	77	72	66	74	69	57	71	67	49	67	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	~~18~~
			Exposed	77	71	66	73	68	54	70	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	~~27~~	22	~~30~~	~~23~~	~~29~~	~~26~~	21	26	~~23~~	~~18~~
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	72	59	76	68	46	73	61	37	69	50	32	66	42	28	56	35	25
			Exposed	76	76	73	76	76	70	76	76	67	76	73	61	76	70	52	76	68	45	74	65	39	69	51	32	65	40	28	52	34	24	43	29	21	36	26	~~28~~	32	23	~~25~~
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	75	66	76	70	51	75	66	38	71	50	32	67	40	28	56	33	25	45	30	22
			Exposed	76	76	71	76	76	68	76	74	64	76	71	53	76	68	44	75	64	38	72	54	34	67	41	28	54	33	24	42	28	21	34	25	~~28~~	30	22	~~25~~	27	19	~~22~~
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	73	67	79	68	54	78	59	42	74	46	34	70	37	30	67	32	27
			Exposed	79	79	78	79	79	74	79	77	71	79	73	68	79	70	64	79	68	53	79	64	45	74	47	34	70	36	29	~~66~~	31	25	53	27	22	43	24	20	36	21	~~26~~
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	61	70	65	45	~~66~~	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	57	76	69	49	76	67	43	71	55	34	67	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	76	72	57	76	69	47	75	66	40	72	57	35	69	49	32	67	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	58	76	69	49	76	67	41	74	60	36	69	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	76	69	48	76	66	40	72	56	34	69	46	31	67	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	59	79	67	50	76	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	79	72	67	79	69	56	79	66	46	77	54	38	74	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	81	77	71	79	73	68	76	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	~~28~~	23	21	~~25~~	20	~~28~~	~~22~~
	D	0-7	Interior	76	76	70	76	75	67	76	69	50	76	67	43	73	61	37	71	54	34	67	42	28	53	34	24	43	30	21	36	26	~~28~~	31	23	~~24~~	28	20	~~22~~	25	~~17~~	~~13~~
			Exposed	76	67	43	72	59	36	69	50	32	67	44	29	60	38	26	52	34	24	46	31	22	36	26	~~28~~	31	22	~~24~~	27	~~29~~	~~21~~	23	~~26~~	~~18~~	20	~~23~~	~~16~~	~~28~~	~~20~~	~~14~~
		7-20	Interior	76	76	73	76	76	68	76	74	64	76	71	53	76	68	44	75	64	38	72	54	34	67	41	28	54	33	24	42	28	21	34	25	~~28~~	30	22	~~25~~	27	19	~~22~~
			Exposed	76	67	43	72	59	36	69	50	32	67	44	29	60	38	26	52	34	24	46	31	22	36	26	~~28~~	31	22	~~24~~	27	~~29~~	~~21~~	23	~~26~~	~~18~~	20	~~23~~	~~16~~	~~28~~	~~20~~	~~14~~
		20-27	Interior	79	79	78	79	79	74	79	77	71	79	73	68	79	70	64	79	68	53	79	64	45	74	47	34	70	36	29	~~66~~	31	25	53	27	22	43	24	20	36	21	~~26~~
			Exposed	79	72	67	79	69	56	79	66	46	77	54	38	74	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	~~27~~	32	~~28~~	~~23~~	28	~~25~~	~~21~~	25	~~22~~	~~18~~
		27-45	Interior	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	81	77	71	79	73	68	76	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	~~28~~	23	21	~~25~~	20	~~28~~	~~22~~
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	59	67	67	46	67	61	37	67	50	32	66	42	28	56	35	25
			Exposed	67	67	67	67	67	67	67	67	67	67	67	61	67	67	52	67	67	45	67	65	39	67	51	32	65	40	28	52	34	24	43	29	21	36	26	~~28~~	32	23	~~25~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	51	67	66	38	67	50	32	67	40	28	56	33	25	45	30	22
			Exposed	67	67	67	67	67	67	67	67	64	67	67	53	67	67	44	67	64	38	67	54	34	67	41	28	54	33	24	42	28	21	34	25	~~28~~	30	22	~~25~~	27	19	~~22~~
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	67	73	68	54	73	59	42	73	46	34	70	37	30	67	32	27
			Exposed	73	73	73	73	73	73	73	73	71	73	73	68	73	70	64	73	68	53	73	64	45	73	47	34	70	36	29	66	31	25	53	27	22	43	24	20	36	21	~~26~~
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	76	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	73	67	75	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	66	67	67	57	67	67	49	67	67	43	67	55	34	67	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	67	67	57	67	67	47	67	66	40	67	57	35	67	49	32	67	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	58	67	67	49	67	67	41	67	60	36	67	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	67	67	48	67	66	40	67	56	34	67	46	31	67	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	59	73	67	50	73	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	73	72	67	73	69	56	73	66	46	73	54	38	73	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	~~27~~	32	~~28~~	~~23~~	28	~~25~~	~~21~~	25	~~22~~	~~18~~
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	74	68	76	72	66	72	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	76	76	71	76	73	68	76	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	~~28~~	23	21	~~25~~	20	~~28~~	~~22~~
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	50	67	67	43	67	61	37	67	54	34	66	42	28	53	34	24	43	30	21	36	26	~~28~~	31	23	~~24~~	28	20	~~22~~
			Exposed	67	67	43	67	59	36	67	50	32	67	44	29	60	38	26	52	34	24	46	31	22	36	26	~~28~~	31	22	~~24~~	27	~~29~~	~~21~~	23	~~26~~	~~18~~	20	~~23~~	~~16~~	~~28~~	~~20~~	~~14~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	42	67	67	60	35	67	51	32	67	43	30	57	34	25	43	29	21	34	~~25~~	~~28~~	30	22	~~25~~	26	~~29~~	~~22~~	23	~~26~~	~~19~~
			Exposed	67	60	35	67	49	32	67	40	28	59	35	26	50	31	23	42	29	21	36	26	~~29~~	30	22	~~25~~	26	~~29~~	~~21~~	22	~~25~~	~~18~~	20	~~22~~	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	74	74	74	74	74	70	74	73	67	74	70	60	74	67	50	74	60	42	74	50	36	70	37	30	66	31	26	54	27	22	43	24	20	36	21	~~26~~	32	~~28~~	~~23~~
			Exposed	74	67	49	74	57	40	74	47	34	71	39	31	68	34	28	66	31	26	58	28	23	44	24	20	35	21	~~26~~	30	~~27~~	~~22~~	26	~~24~~	~~19~~	23	~~21~~	~~17~~	21	~~18~~	~~15~~
		27-45	Interior	77	77	77	77	77	75	77	77	71	77	74	69	77	72	66	74	69	57	71	67	49	67	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	~~18~~
			Exposed	77	71	66	73	68	54	70	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	~~27~~	22	~~30~~	~~23~~	~~29~~	~~26~~	21	26	~~23~~	~~18~~

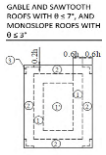
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

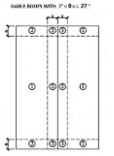
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

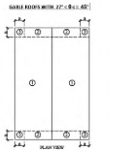
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

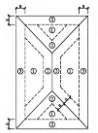












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

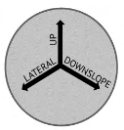
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

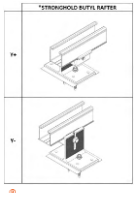
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	46	60	60	37	60	50	32	60	60	42	28	56	35	25
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	52	60	60	45	60	60	39	60	51	32	60	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	51	60	60	38	60	50	32	60	40	28	56	33	25	45	30	22
			Exposed	60	60	60	60	60	60	60	60	60	60	60	53	60	60	44	60	60	38	60	54	34	60	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	46	67	67	34	67	67	37	30	67	32	27			
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	53	67	64	45	67	47	34	67	36	29	66	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	56	70	64	45	66	52	36	55	43	32	
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	60	60	43	60	55	34	60	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	60	60	57	60	60	47	60	60	40	60	57	35	60	49	32	60	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	60	41	60	60	36	60	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	60	60	48	60	60	40	60	56	34	60	46	31	60	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	59	67	67	50	67	52	37	67	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	67	67	67	67	67	56	67	66	46	67	54	38	67	45	34	67	67	38	31	67	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	71	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	72	72	71	72	72	72	68	72	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	60	60	60	60	60	60	60	60	59	60	60	50	60	60	43	60	60	37	60	54	34	60	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	60	60	43	60	59	36	60	50	32	60	44	29	60	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	60	60	60	60	60	60	60	60	50	60	60	42	60	60	35	60	51	32	60	43	30	57	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	60	60	35	60	49	32	60	40	28	59	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	60	69	67	50	69	60	42	69	50	36	69	37	30	66	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	69	67	49	69	57	40	69	47	34	69	39	31	68	34	28	66	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	19	23	21	17	21	16	15
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	69	73	72	66	73	69	57	71	67	49	67	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	73	71	66	73	68	54	70	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	46	58	58	37	58	50	32	58	42	28	56	35	25	
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	52	58	58	45	58	58	39	58	51	32	58	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	38	58	50	32	58	40	28	56	33	25	45	30	22
			Exposed	58	58	58	58	58	58	58	58	58	58	58	53	58	58	44	58	58	38	58	54	34	58	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	54	62	59	42	62	46	34	62	37	30	62	32	27
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	53	62	62	45	62	47	34	62	36	29	62	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	56	65	64	45	63	52	36	55	43	32
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	49	58	58	43	58	55	34	58	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	58	58	57	58	58	47	58	58	40	58	57	35	58	49	32	58	43	29	58	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	49	58	58	41	58	58	36	58	45	30	58	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	58	58	48	58	58	40	58	56	34	58	46	31	58	39	28	58	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	50	62	52	37	62	39	31	62	33	27	58	28	24	47	25	21	39	22	28
			Exposed	62	62	62	62	62	56	62	62	46	62	54	38	62	45	34	62	38	31	62	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	50	64	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	67	67	67	67	67	54	67	67	62	67	67	52	67	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	60	60	60	60	60	60	60	60	59	60	60	50	60	60	43	60	60	37	60	54	34	60	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	60	60	43	60	59	36	60	50	32	60	44	29	60	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	60	60	60	60	60	60	60	60	50	60	60	42	60	60	35	60	51	32	60	43	30	57	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	60	60	35	60	49	32	60	40	28	59	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	60	64	64	50	64	60	42	64	50	36	64	37	30	64	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	64	64	49	64	57	40	64	47	34	64	39	31	64	34	28	64	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	19	23	21	17	21	16	15
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	57	67	67	49	65	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	69	69	66	69	68	54	69	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	46	53	53	37	53	50	32	53	42	28	53	35	25
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	45	53	53	39	53	51	32	53	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	38	54	50	32	54	40	28	54	33	25	45	30	22
			Exposed	54	54	54	54	54	54	54	54	54	54	54	53	54	54	44	54	54	38	54	54	34	54	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	42	58	46	34	58	37	30	58	32	27
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	45	58	47	34	58	43	29	58	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	56	63*	63*	45	62*	52	36	55	43	32
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	45	63*	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	43	53	53	34	53	44	29	53	36	25	46	31	22	39	27	29	33	24	26
			Exposed	53	53	53	53	53	47	53	53	40	53	53	35	53	49	32	53	43	29	53	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	41	54	54	36	54	45	30	54	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	54	54	48	54	54	40	54	54	34	54	46	31	54	39	28	54	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	52	37	58	39	31	58	33	27	57	28	24	47	25	21	39	22	28
			Exposed	58	58	58	58	58	56	58	58	46	58	54	38	58	45	34	58	38	31	58	34	28	58	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	50	62*	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	52	63*	63*	44	63*	54	38	62*	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	50	56	56	43	56	56	37	56	54	34	56	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	56	56	43	56	56	36	56	50	32	56	44	29	56	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	56	56	56	56	56	56	56	56	50	56	56	42	56	56	35	56	51	32	56	43	30	56	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	56	56	35	56	49	32	56	40	28	56	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	42	60	50	36	60	37	30	60	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	60	60	49	60	57	40	60	47	34	60	39	31	60	34	28	60	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	19	23	21	17	21	16	15
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	57	66*	66*	49	66*	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	67*	67*	66*	67*	67*	54	67*	66*	45	67*	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18

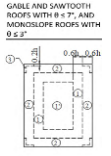
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

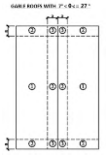
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

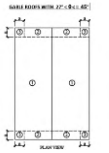
18 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

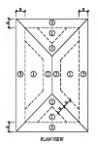












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

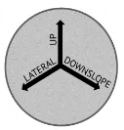
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

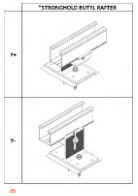
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	37	49	49	32	49	46	28	49	35	25			
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	45	49	49	39	49	49	32	49	40	28	49	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	38	49	49	32	49	40	28	49	33	25	45	30	22
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	38	49	49	34	49	41	28	49	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	46	34	57*	37	30	57*	32	27					
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	53	57*	57*	45	57*	47	34	57*	36	29	57*	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	58*	58*	45	56*	53*	36	55*	43	32			
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	45	59*	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	34	49	49	32	49	36	25	46	31	22	39	27	29
			Exposed	49	49	49	49	49	47	49	49	40	49	49	35	49	49	32	49	43	29	49	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	36	49	45	30	49	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	49	49	48	49	49	40	49	49	34	49	46	31	49	39	28	49	34	25	49	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	50	57*	52	37	57*	39	31	57*	33	27	56*	28	24	47	25	21	39	22	28
			Exposed	57*	57*	57*	57*	57*	56*	57*	57*	46	57*	54*	38	57*	45	34	57*	38	31	57*	34	28	57*	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	58*	50	57*	56*	39	55*	44	32	43	36	28	35	31	25	31	28	22
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	52*	59*	59*	44	59*	55*	38	59*	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	50	52	52	43	52	52	37	52	52	34	52	42	28	52	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	52	52	43	52	52	36	52	50	32	52	44	29	52	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	52	52	52	52	52	52	52	52	50	52	52	42	52	52	35	52	51	32	52	43	30	52	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	52	52	35	52	49	32	52	40	28	52	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	42	57	50	36	57	37	30	56	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	57	57	49	57	57	47	34	57	39	31	57	34	28	57	31	26	57	28	23	44	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	16	23	16	15
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	57*	60*	60*	49	58*	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	61*	61*	61*	61*	61*	54	61*	61*	45	61*	55	38	61*	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	32	46	42	28	46	35	25			
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	32	46	40	28	46	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	46	32	46	40	28	46	33	25	45	30	22
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	34	46	41	28	46	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	42	51*	46	34	51*	37	30	51*	32	27			
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45	51*	47*	34	51*	36	29	51*	31	25	51*	27	22	43	24	20	36	21	26
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	46*	55*	55*	45*	54*	52*	36	53*	43	32			
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	46*	55*	51*	35	50*	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	34	46	44	29	46	36	25	46	34	22	46	31	22	44	29	26
			Exposed	46	46	46	46	46	46	46	46	40	46	46	35	46	46	32	46	43	29	46	38	26	46	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	45	30	46	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	46	46	46	46	46	40	46	46	34	46	46	31	46	39	28	46	34	25	46	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	37	51*	39	31	51*	33	27	51*	28	24	47*	25	21
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	46	51*	51*	38	51*	45	34	51*	38	31	51*	34	28	51*	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	54*	54*	39	53*	44	32	43	36	28	35	31	25	31	28	22
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	55*	44	55*	54*	38	55*	47*	34	45*	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	43	48	48	37	48	48	34	48	42	28	48	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	48	48	43	48	48	36	48	48	32	48	44	29	48	38	26	48	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	42	48	48	35	48	48	32	48	43	30	48	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	48	48	35	48	48	32	48	40	28	48	35	26	48	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50	56*	56*	42	56*	50	36	56*	37	30	56*	31	26	54*	27	22	43	24	20	36	21	26	32	28	23
			Exposed	56*	56*	49	56*	56*	40	56*	47	34	56*	39	31	56*	34	28	56*	31	26	56*	28	23	44	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	16	15
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	49*	56*	53*	37	52*	41	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	58*	58*	58*	58*	58*	58*	45	58*	55*	38	58*	47	34	51*	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18			
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	32	43	42	28	43	35	25			
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32	43	40	28	43	32	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	32	43	40	28	43	33	25	43	30	22
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	32	43	40	28	43	33	25	43	30	22
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	46*	34	48*	37	30	48*	32	27			
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	48*	39	48*	43*	24	43	24	20	36	21	26	32	28	23
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	39	49*	44*	32	44*	36	28	35	31	25	31	28	22
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	38	49*	47*	34	44*	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	34	43	43	29	43	36	25	43	31	22	39	27	29	33	24	26
			Exposed	43	43	43	43	43	40	43	43	35	43	43	32	43	43	32	43	43	29	43	38	26	43	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	36	43	43	30	43	35	26	43	30	22	36	26	19	32	23	26	28	22	23
			Exposed	43	43	43	43	43	43	43	43	34	43	43	31	43	39	28	43	34	25	43	31	23	37	27	20	31	23	25	27	20	22	24	26	18	21	23	17	28	20	15
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	37	48*	39	31	48*	33	27	48*	28	24	47*	25	21
			Exposed	48*	48*	48*	48*	48*	48*	46*	48*	38	48*	48*	38	48*	45*	34	48*	38	31	48*	34	28	48*	29	24	46*	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	39	49*	44*	32	44*	36	28	35	31	25	31	28	22
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	38	49*	47*	34	44*	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	37	45	45	34	45	42	28	45	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	45	45	43	45	45	36	45	45	32	45	44	29	45	38	26	45	34	24	45	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	45	45	45	45	45	45	45	45	45	42	45	45	35	45	45	32	45	45	30	45	34	25	43	29	21	34	25	28	30	22	25	26	19	32	23	26	28	21	23
			Exposed	45	45	35	45	45	32	45	40	28	45	35	26	45	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	37	50*	50*	34	50*	37	30	50*	27	22	43	24	20
			Exposed	50*	50*	49*	50*	50*	40	50*	47*	34	50*	39	31	50*	34	28	50*	31	26	50*	28	23	44	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	16	15
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	49*	53*	53*	37	52*	41	31	40	34	27	33	30	24	29	26	21
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	45*	54*	54*	38	54*	47*	34	51*	41	31	44*	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18

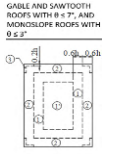
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

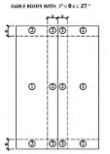
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

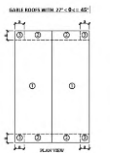
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

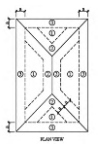












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

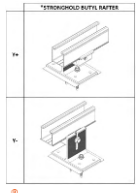
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	32	40	40	28	40	35	25
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	32	40	40	28	40	34	24	40	29	21	36	26	28	32	23	25
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	28	41	33	25	41	30	22					
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	34	41	41	28	41	33	24	41	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	34	45*	37	30	45*	32	27
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	34	45*	36	29	45*	31	25	45*	27	22	43*	24	20	36	21	26
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	36*	44*	43*	32
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	36*	44*	40*	31	39*	34	27	33	30	24	29	26	21
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	29	40	36	25	40	31	22	39	27	29	33	24	26
			Exposed	40	40	40	40	40	40	40	40	40	40	40	35	40	40	32	40	40	29	40	38	26	40	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	36	41	41	30	41	35	26	41	30	22	36	26	19	32	23	26	28	21	23
			Exposed	41	41	41	41	41	40	41	41	34	41	41	31	41	39	28	41	34	25	41	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	39*	31	45*	33	27	45*	28	24	45*	25	21	39*	22	28
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38*	45*	45*	34	45*	38*	31	45*	34	28	45*	29	24	45*	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	39*	44*	44*	32	43*	36*	28	35	31	25	31	28	22
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*	44*	44*	34	44*	37*	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	34	43	42	28	43	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	43	43	43	43	43	43	43	43	43	43	43	29	43	38	26	43	34	24	43	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	42	43	43	35	43	43	32	43	43	30	43	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	43	43	35	43	43	32	43	40	28	43	35	26	43	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	36	48*	37	30	48*	31	26	48*	27	22	43*	24	20	36	21	26	32	28	23
			Exposed	48*	48*	48*	48*	48*	47*	34	48*	39	31	48*	34	28	48*	31	26	48*	28	23	44*	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	18	15
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	37	48*	42*	31	40*	34	27	33	30	24	29	26	21	26	23	28
			Exposed	48*	48*	48*	48*	48*	48*	45*	48*	48*	39*	48*	47*	34	48*	41*	31	43*	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	32	38	38	28	38	35	25
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	28	38	34	24	38	29	21	36	26	28	32	23	25
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38	41*	41*	32	41*	39	28	41*	33	25	41*	30	22
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38	41*	41*	34	41*	41*	28	41*	33	24	41*	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	37*	30	41*	32	27
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	36*	29	41*	31	25	41*	27	22	41*	24	20	36*	21	26
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	32
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	31	39*	34*	27	33*	30	24	29	26	21	26	23	28
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	34	38	38	29	38	36	25	38	31	22	38	27	29	33	24	26
			Exposed	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	38	29	38	38	26	38	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	30	41*	35	26	41*	30	23
			Exposed	41*	41*	41*	41*	41*	39	41*	41*	34	41*	41*	31	41*	39	28	41*	34	25	41*	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	39*	31	41*	33	27	41*	28	24	41*	25	21	39*	22	28
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38*	41*	41*	34*	41*	38*	31	41*	34*	28	41*	29	24	41*	25	20	37*	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	33*	40*	36*	28	35*	31	25	31	28	22
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	40*	34*	40*	36*	29	34*	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	34	40	40	28	40	34	24	40	30	21	36	26	28	31	23	24	28	20	22
			Exposed	40	40	40	40	40	36	40	40	32	40	40	29	40	38	26	40	34	24	40	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	41	32	41	41	30	41	34	25	41	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	41	41	35	41	41	32	41	40	28	41	35	26	41	31	23	41	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	36	45*	37	30	45*	31	26	45*	27	22	43*	24	20	36	21	26	32	28	23
			Exposed	45*	45*	45*	45*	45*	40*	45*	45*	34	45*	39*	31	45*	34	28	45*	31	26	45*	28	23	44*	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	18	15
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37*	44*	41*	31	40*	34	27	33	30	24	29	26	21	26	23	28
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*	44*	44*	34	44*	41*	31	43*	36*	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18

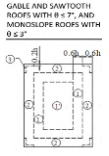
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

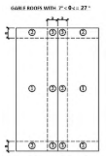
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

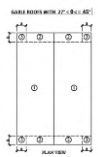
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

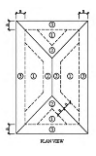












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

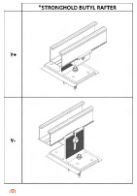
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	92	101	101	88	101	97	84	101	90	78	97	84	73	91	79	68	86	75	63	81	71	55	77	67	49
			Exposed	101	101	91	101	100	87	101	95	82	101	91	79	101	87	75	97	84	72	93	80	70	86	75	63	80	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	94	81	102	86	74	94	80	69	87	74	63	81	70	55	76	66	49	72	58	43
			Exposed	102	102	88	102	97	83	102	92	79	102	87	75	98	83	72	93	79	69	89	76	66	82	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	71	92	73	66	87	68	59	82	63	52
			Exposed	102	102	98	102	102	92	102	96	87	102	91	83	102	87	79	102	83	75	100	79	72	92	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	63
			Exposed	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	101	101	94	101	101	89	101	98	85	101	93	81	101	89	77	99	86	74	95	82	71	88	77	66	82	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	62	82	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	94
		7-20	Interior	102	102	91	102	100	86	102	94	81	102	89	77	101	85	74	96	81	71	91	78	68	84	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	101	85	74	95	80	70	89	76	66	85	73	61	81	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	94	36	40	90
		20-27	Interior	102	102	101	102	102	95	102	99	90	102	94	85	102	89	81	102	85	77	102	81	74	95	75	68	88	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	102	89	81	102	84	76	101	80	73	96	76	69	92	72	66	88	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	103	103	103	103	103	102	103	103	97	103	101	92	103	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	103	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	101	100	86	101	94	82	101	90	78	100	86	74	95	82	71	91	79	68	87	76	66	81	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	95	82	71	90	78	68	86	75	63	82	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	92	36	40	90
		7-20	Interior	102	96	83	102	91	78	102	86	74	96	82	71	91	78	68	87	75	64	83	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	91	78	68	86	74	62	82	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	92	34	38	90	46	94	95
		20-27	Interior	102	101	91	102	95	86	102	90	82	102	85	78	102	81	74	98	78	71	94	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	102	81	74	97	77	70	92	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	94	41	36	90
		27-45	Interior	103	103	98	103	103	93	103	103	84	97	89	80	92	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36			
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	90	78	95	84	73	91	79	68	86	75	63	81	71	55	77	67	49
			Exposed	95	95	91	95	95	87	95	95	82	95	91	79	95	87	75	95	84	72	93	80	70	86	75	63	80	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	94	81	95	86	74	94	80	69	87	74	63	81	70	55	76	66	49	72	58	43
			Exposed	95	95	88	95	95	83	95	92	79	95	87	75	95	83	72	93	79	69	89	76	66	82	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	71	92	73	66	87	68	59	82	63	52
			Exposed	99	99	98	99	99	92	99	96	87	99	91	83	99	87	79	99	83	75	99	79	72	92	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	63
			Exposed	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	95	95	94	95	95	89	95	95	85	95	93	81	95	89	77	95	86	74	95	82	71	88	77	66	82	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	62	82	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	94
		7-20	Interior	95	95	91	95	95	86	95	94	81	95	89	77	95	85	74	95	81	71	91	78	68	84	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	95	85	74	95	80	70	89	76	66	85	73	61	81	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	94	36	40	90
		20-27	Interior	99	99	99	99	99	95	99	99	90	99	94	85	99	89	81	99	85	77	99	81	74	95	75	68	88	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	99	89	81	99	84	76	99	80	73	96	76	69	92	72	66	88	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	102	102	102	102	102	97	102	101	92	102	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44			
			Exposed	102	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	95	82	71	90	78	68	86	75	63	82	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	92	36	40	90
		7-20	Interior	95	95	83	95	91	78	95	86	74	95	82	71	91	78	68	87	75	64	83	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	91	78	68	86	74	62	82	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	92	34	38	90	46	94	95
		20-27	Interior	100	100	91	100	95	86	100	90	82	100	85	78	100	81	74	98	78	71	94	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	100	81	74	97	77	70	92	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	94	41	36	90
		27-45	Interior	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	86	75	63	81	71	55	77	67	49
			Exposed	86	86	86	86	86	86	86	86	82	86	86	79	86	86	75	86	84	72	86	80	70	86	75	63	80	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	81	86	86	74	86	80	69	86	74	63	81	70	55	76	66	49	72	58	43
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	82	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	71	92	73	66	87	68	59	82	63	52
			Exposed	92	92	92	92	92	92	92	92	87	92	91	83	92	87	79	92	83	75	92	79	72	92	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	91	82	92	85	77	86	80	72	80	75	68	76	71	63
			Exposed	95	95	95	95	95	95	95	95	94	95	95	89	95	94	85	95	90	82	94	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	77	86	86	74	86	82	71	86	77	66	82	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	62	82	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	94
		7-20	Interior	86	86	86	86	86	86	86	86	81	86	86	77	86	85	74	86	86	71	86	78	68	84	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	86	85	74	86	80	70	86	76	66	85	73	61	81	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	94	36	40	90
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	92	89	81	92	84	76	92	80	73	92	76	69	92	72	66	88	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	92	84	95	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	95	95	87	95	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	86	82	71	86	78	68	86	75	63	82	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	92	36	40	90
		7-20	Interior	86	86	83	86	86	78	86	86	74	86	82	71	86	78	68	86	75	64	83	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	86	78	68	86	74	62	82	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	92	34	38	90	46	94	95
		20-27	Interior	93	93	91	93	93	86	93	90	82	93	85	78	93	81	74	93	78	71	93	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	93	81	74	93	77	70	92	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	94	41	36	90
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	89	80	92	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36

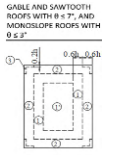
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

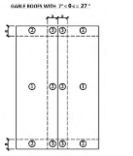
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

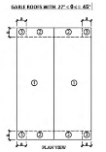
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

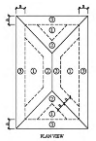












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

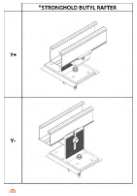
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	73	79	79	68	79	75	63	79	71	55	77	67	49
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	70	79	75	63	79	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	80	80	69	80	74	63	80	70	55	76	66	49	72	58	43
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	83	76	86	77	71	86	73	66	86	68	59	82	63	52
			Exposed	86	86	86	86	86	86	86	86	86	86	86	83	86	86	79	86	83	75	86	79	72	86	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	85	77	86	80	72	80	75	68	76	71	63
			Exposed	90	90	90	90	90	90	90	90	89	90	90	85	90	90	82	90	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41			
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	71	79	79	71	79	77	66	79	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	62	79	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	71	80	78	68	80	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	80	80	74	80	80	70	80	76	66	80	73	61	80	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	54	36	40	90
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	85	86	86	86	81	86	85	77	86	81	74	86	75	68	86	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	86	86	81	86	84	76	86	80	73	86	76	69	86	72	66	86	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	90	90	87	90	90	83	90	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	79	79	71	79	78	68	79	75	63	79	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	54	36	40	90
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	64	80	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	80	78	68	80	74	62	80	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	54	34	38	90	46	54	25
		20-27	Interior	88	88	88	88	88	86	88	88	82	88	85	78	88	81	74	88	78	71	88	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	88	81	74	88	77	70	88	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	54	41	36	90
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	89	80	91	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	91	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	75	63	78	71	55	77	67	49
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	70	78	75	63	78	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	63	78	70	55	76	66	49	72	58	43
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	71	82	73	66	82	68	59	81	63	52
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	67	82	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	85	85	77	80	72	80	75	68	76	71	63
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	77	66	78	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	62	78	71	57	78	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	68	78	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	78	78	74	78	78	70	78	76	66	78	73	61	78	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	54	36	40	90
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	77	82	81	74	82	75	68	82	70	61	81	64	53	78	56	46	73	49	41	70	44	36
			Exposed	82	82	81	82	82	76	82	80	73	82	76	69	82	72	66	82	69	60	82	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	84	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44			
			Exposed	86	86	86	86	86	83	86	86	79	86	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	79	79	71	79	78	68	79	75	63	79	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	54	36	40	90
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	64	80	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	80	78	68	80	74	62	80	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	54	34	38	90	46	54	25
		20-27	Interior	83	83	83	83	83	83	83	83	82	83	83	78	83	81	74	83	78	71	83	74	68	83	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	83	81	74	83	77	70	83	73	67	83	69	61	83	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	54	41	36	90
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	87	87	80	87	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	63	74	71	55	74	67	49
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	70	74	74	63	74	70	54	74	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	63	74	70	55	74	66	49	72	58	43
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	56	74	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	71	78	73	66	78	68	59	77	63	52
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	72	78	73	67	78	68	58	78	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	77	80	80	72	79	75	68	76	71	63			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	57	74	68	50	73	61	43	69	54	38	66	48	51
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	62	74	71	57	74	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	68	74	74	68	74	74	63	74	74	63	74	71	55	74	67	49			
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	63	74	70	54	74	66	47	71	58	41	68	51	36	62	45	49
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	71	78	73	66	78	68	59	77	63	52
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	72	78	73	67	78	68	58	78	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	77	80	80	72	79	75	68	76	71	63			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	76	66	76	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43		
			Exposed	76	76	71	76	76	68	76	75	63	76	72	57	76	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	54	36	40	90
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	64	76	72	58	76	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38		
			Exposed	76	76	68	76	74	62	76	70	56	76	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	54	34	38	90	46	54	25
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	74	80	78	71	80	74	68	80	69	60	79	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	80	80	74	80	77	70	80	73	67	80	69	61	80	66	55	80	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	54	41	36	90
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	83	83	77	82	82	74	80	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	84	84	80	84	84	76	84	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36

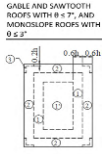
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

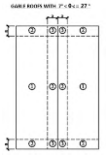
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

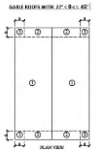
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

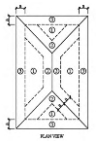












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

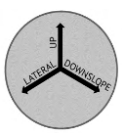
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

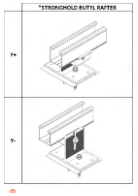
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	69	69	55	69	67	49
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	69	69	54	69	66	47	69	58	41	68	51	36	62	45	49
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	69	69	69	55	69	66	49	69	58	43
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	56	69	65	48	69	56	42	66	49	36	59	43	48
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	71	75	73	66	75	68	59	74	63	52	72	52	43
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	67	75	68	58	75	61	50	75	53	44	72	47	39	68	42	34
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	72	76	75	68	74	70	60	70	66	53	66	59	47
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	61	69	68	50	69	61	43	69	54	38	66	48	51
			Exposed	69	69	69	69	69	69	69	69	69	69	69	67	69	69	62	69	69	57	69	69	52	69	69	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	59	69	67	51	69	59	44	68	52	38	62	46	51	55	41	45
			Exposed	69	69	69	69	69	69	69	69	66	69	69	61	69	69	55	69	67	50	69	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	54	36	40	50
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	68	75	70	61	74	64	53	73	56	46	72	49	41	70	44	36
			Exposed	75	75	75	75	75	75	73	75	75	69	75	72	66	75	69	60	75	66	55	75	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36		
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	64	72	68	56	67	62	49	61	55	44	
			Exposed	79	79	79	79	79	79	79	79	79	75	79	79	72	79	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43		
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	56	72	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	72	72	71	72	72	68	72	72	63	72	72	57	72	69	52	72	66	47	72	71	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	52	36	40	
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	64	72	72	58	72	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	72	72	68	72	72	62	72	70	56	72	67	50	72	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	69	60	76	62	51	75	53	44	72	47	39	68	41	34	62	37	46
			Exposed	77	77	74	77	77	70	77	73	67	77	69	61	77	66	55	77	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	74	78	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	55	64	64	49
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	54	64	64	47	64	58	41	64	51	36	62	45	49
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	55	64	64	49	64	58	43
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	64	48	64	56	42	64	49	36	59	43	48	52	38	43
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	59	71	63	52
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	58	71	61	50	71	53	44	71	47	39	68	42	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	75	75	75	74	74	72	73	73	68	72	71	63
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	54	64	64	47	64	58	41	64	51	36	62	45	49
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	55	64	64	49	64	58	43
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	64	48	64	56	42	64	49	36	59	43	48	52	38	43
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	59	71	63	52
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	58	71	61	50	71	53	44	71	47	39	68	42	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	72	73	73	68	72	71	63			
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	54	64	64	47	64	58	41	64	51	36	62	45	49
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	55	64	64	49	64	58	43
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	64	48	64	56	42	64	49	36	59	43	48	52	38	43
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	59	71	63	52
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	58	71	61	50	71	53	44	71	47	39	68	42	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	72	73	73	68	72	71	63			
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	75	68	74	70	60	70	66	53	66	59	47	58	52	41
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	49		
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	49		
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	49	60	58
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	48	52	38
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	59	67	63
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	47	39	67
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	77*	77*	77*	72	71	71	68	70	70	63
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72	79*	74	68	73	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	50	60	60	43	60	54	38	60	48	51
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	44	60	53	38	60	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	51	60	59	44	60	52	38	60	46	51	55	41	45
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	50	60	60	46	60	52	39	60	45	50	53	39	44	46	51	38	41	45	54	36	40	50
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	64	53	67	56	46	66	49	41	64	44	36
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	60	67	66	55	67	57	47	67	49	40	67	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	74	79*	79*	72	79*	74	69	78*	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	74	79*	79*	72	79*	74	69	78*	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	56	63	63	48	63	63	48	63	58	41	63	51	36	62	45	48
			Exposed	63	63	63	63	63	63	63	63	63	63	63	57	63	63	52	63	63	47	63	61	43	63	52	37	61	44	47	53	38	41	46	51	36	40	45	52	36	40	
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	43	63	63	49	63	57	42	63	49	37	59	43	48
			Exposed	63	63	63	63	63	62	63	63	56	63	63	50	63	62	46	63	56	42	63	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	69	60	70	62	51	69	53	44	68	47	39	66	41	34	62	37	46
			Exposed	70	70	70	70	70	70	70	70	67	70	69	61	70	66	55	70	61	50	70	56	46	70	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	73	73	68	72	71	61	70	66	53	65	59	47	58	52	41	51	46	36	
			Exposed	76	76	76	76	76	76	76	76	72	76	76	69	76	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36

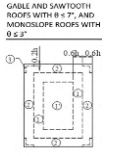
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

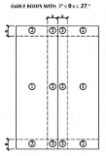
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

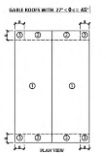
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

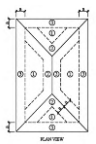












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

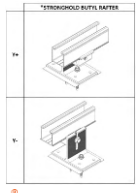
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	49
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	47	57	57	41	57	51	36	57	45	49
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49	57	57	43	57	43
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	48	57	56	42	57	49	36	57	43	48	52	38	43
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	52			
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	61	50	63	53	44	63	47	39	63	42	34
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	73*	73*	72*	71*	71*	68	70*	70*	63
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	68	71*	70*	60	70*	66	53	66	59	47	58	52	41
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	57	43	57	54	38	57	51
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	44	57	53	38	57	46	49	55	40	43	49	53	38	43	48	34
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	51	57	57	44	57	52	38	57	46	51	55	41	45
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	50	57	57	46	57	52	39	57	45	50	53	39	44	46	51	38	41	45	34	36	40	30	
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	53	63	56	46	63	49	41	62	44	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	55	63	57	47	63	49	40	63	42	35	62	37	46	55	40	41	49	44	36	
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	64	71*	65	56	64	62	49	61	55	44
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	70*	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	48	60	58	41	60	51	36	60	45	48	55	40	43
			Exposed	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	47	60	60	43	60	52	37	60	44	47	53	38	41	46	51	36	40	45	32	36	40	28		
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	57	42	60	49	37	59	43	48	52	38	43	46	51	38
			Exposed	60	60	60	60	60	60	60	60	56	60	60	50	60	60	46	60	56	42	60	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	60	67	62	51	66	53	44	65	47	39	64	41	34	62	37	46
			Exposed	67	67	67	67	67	67	67	67	67	61	67	66	55	67	61	50	67	56	46	67	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30		
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	78*	78*	77*	77*	77*	72	78*	71	68	69	69	61	67	66	53	65	59	47	58	52	41	51	46	36	
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	72	76*	76*	69	76*	73	66	73	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	54	41	54	51	36	54	45	49
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	43
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	54	42	54	54	36	54	43	48	52	38	43
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	52
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	50	60	53	44	60	47	39	60	42	34
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	64*	64*	63*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60	67*	66*	53	66*	59	47	58	52	41
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	54	54	54	43	54	54	38	54	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44	54	53	38	54	46	49	54	40	43	49	53	38	43	48	34
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	44	54	52	38	54	46	51	54	41	45
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	54	54	46	54	52	39	54	45	50	53	39	44	46	51	38	41	45	34	36	40	30	
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	60	56	46	60	49	41	60	44	36
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	57	47	60	49	40	60	42	35	60	37	46	55	49	41	49	44	36
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	65*	65*	64*	66*	66*	56	64*	62	49	61	55	44
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	56	66*	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	48	57	57	41	57	51	36	57	45	48	55	40	43
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	43	57	52	37	57	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	49	57	57	42	57	49	37	57	43	48	52	38	43	46	51	38
			Exposed	57	57	57	57	57	57	57	57	56	57	57	50	57	57	46	57	56	42	57	52	38	57	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	62	51	63	53	44	62	47	39	61	41	34	60	37	46
			Exposed	63	63	63	63	63	63	63	63	63	61	63	63	55	63	61	50	63	56	46	63	47	39	63	41	51	60	35	44	52	46	38	46	41	34	41	36	30		
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	61	70*	65	53	63	59	47	58	52	41	51	46	36
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	71*	70*	60	70*	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36		

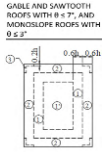
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

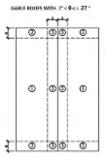
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

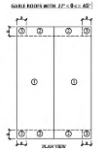
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

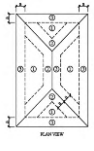












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

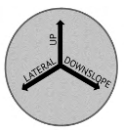
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

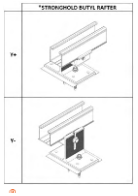
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	55	76	67	44	72	60	38	69	50	34	66	42	30
			Exposed	86	86	77	86	83	73	86	80	70	86	76	67	83	74	63	80	71	54	78	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	84	74	86	81	72	86	78	69	83	73	60	78	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	86	84	74	86	80	71	86	77	68	84	73	63	81	71	53	77	68	45	75	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	81	87	84	78	87	81	75	87	75	70	86	71	65	81	67	50	77	55	41	73	44	36	70	38	32
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	63	83	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	82	87	86	79	87	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	87	87	85	87	87	82	87	85	78	87	82	75	84	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	59	79	70	51	74	66	41	70	52	35	66	43	30	55	37	26	46	33	23	40	29	21
			Exposed	85	75	66	81	72	57	78	69	48	75	66	42	72	59	38	70	52	34	67	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	67	82	72	58	79	69	50	76	67	43	71	53	36	67	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	82	72	58	78	69	47	75	66	41	72	56	37	69	47	33	67	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	87	87	82	87	87	75	87	87	78	72	87	75	69	87	72	67	85	69	60	79	62	44	74	47	37	70	39	32	67	34	28	57	30	25	47	27	22		
			Exposed	87	75	69	87	71	66	83	68	55	80	65	46	77	54	40	74	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	77	86	80	74	83	77	71	80	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	86	80	74	82	77	70	78	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	86	83	73	86	79	70	86	76	67	82	73	60	79	70	51	76	68	45	74	64	40	69	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	79	70	51	76	67	43	73	60	38	70	52	35	67	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	86	80	70	86	76	67	83	73	60	80	70	50	76	67	42	73	61	39	71	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	76	67	42	73	58	38	70	48	34	67	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	~~26~~	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	87	83	76	87	79	73	87	75	70	87	72	67	85	69	59	81	67	50	79	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	84	69	59	81	66	48	77	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	87	87	81	87	84	77	87	81	74	83	78	71	80	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	80	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
10	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	55	76	67	44	72	60	38	69	50	34	66	42	30
			Exposed	81	80	77	81	81	73	81	80	70	81	76	67	81	74	63	80	71	54	78	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	72	81	78	69	81	73	60	78	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	81	81	74	81	80	71	81	77	68	81	73	63	81	71	53	77	68	45	75	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	84	81	75	84	75	70	84	71	65	81	67	50	77	55	41	73	44	36	70	38	32
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	63	83	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	86	86	85	86	86	82	86	85	78	86	82	75	84	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	81	81	78	81	81	72	81	78	69	81	75	66	81	72	59	79	70	51	74	66	41	70	52	35	66	43	30	55	37	26	46	33	23	40	29	21			
			Exposed	81	75	66	81	72	57	78	69	48	75	66	42	72	59	38	70	52	34	67	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	67	81	72	58	79	69	50	76	67	43	71	53	36	67	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	81	72	58	78	69	47	75	66	41	72	56	37	69	47	33	67	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	84	84	82	84	84	79	84	81	75	84	78	72	84	75	69	84	72	67	84	69	60	79	62	44	74	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	84	75	69	84	71	66	83	68	55	80	65	46	77	54	40	74	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	86	86	86	86	86	83	86	86	80	86	83	77	86	80	74	83	77	71	80	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	86	80	74	82	77	70	78	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	81	81	73	81	79	70	81	76	67	81	73	60	79	70	51	76	68	45	74	64	40	69	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	79	70	51	76	67	43	73	60	38	70	52	35	67	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	81	80	70	81	76	67	81	73	60	80	70	50	76	67	42	73	61	39	71	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	76	67	42	73	58	38	70	48	34	67	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	~~26~~	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	87	83	76	87	79	73	87	75	70	87	72	67	85	69	59	81	67	50	79	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	84	69	59	81	66	48	77	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	87	87	81	87	84	77	87	81	74	83	78	71	80	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	80	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	55	73	67	44	72	60	38	69	50	34	66	42	30
			Exposed	73	73	73	73	73	72	73	73	70	73	73	67	73	73	63	73	71	54	73	69	47	73	61	39	68	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	60	73	68	46	73	60	39	69	48	34	66	40	30	54	36	26
			Exposed	73	73	73	73	73	71	73	73	68	73	73	63	73	71	53	73	68	45	73	65	40	70	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	75	70	78	71	65	78	67	50	77	55	41	73	44	36	70	38	32
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	63	78	68	54	77	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	77	72	66	72	68	53	69	63	43	65	52	38
			Exposed	81	81	81	81	81	81	81	81	78	81	81	75	81	78	72	81	76	70	78	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	59	73	70	51	73	66	41	70	52	35	66	43	30	55	37	26	46	33	23	40	29	21
			Exposed	73	73	66	73	72	57	73	69	48	73	66	42	72	59	38	70	52	34	67	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	67	73	72	58	73	69	50	73	67	43	71	53	36	67	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	73	72	58	73	69	47	73	66	41	72	56	37	69	47	33	67	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	67	78	69	60	78	62	44	74	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	78	75	69	78	71	66	78	68	55	78	65	46	77	54	40	74	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	81	80	74	81	77	70	78	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	60	73	70	51	73	68	45	73	64	40	69	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	73	70	51	73	67	43	73	60	38	70	52	35	67	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	73	73	70	73	73	67	73	73	60	73	70	50	73	67	42	73	61	39	71	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	73	67	42	73	58	38	70	48	34	67	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	~~26~~	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	79	79	76	79	79	73	79	75	70	79	72	67	79	69	59	79	67	50	79	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	79	69	59	79	66	48	77	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	78	71	80	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	80	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22

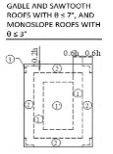
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

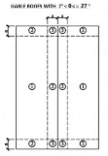
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

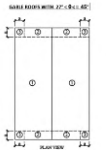
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

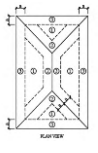












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

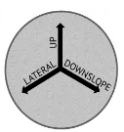
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

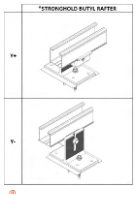
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	44	65	60	38	65	50	34	65	42	30
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	54	65	65	47	65	61	39	65	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	60	66	66	60	66	60	39	66	48	34	66	46	30	54	36	26
			Exposed	66	66	66	66	66	66	66	66	66	66	66	63	66	66	53	66	66	45	66	65	40	66	49	34	65	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	73	70	73	55	41	73	71	65	73	67	50	73	44	36	70	38	32
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	63	73	68	54	73	56	41	73	43	35	69	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	70	76	72	66	72	68	53	69	63	43	65	52	38
			Exposed	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	70	76	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	41	65	52	35	65	43	30	55	37	26	46	33	23	40	29	21
			Exposed	65	65	65	65	65	57	65	65	48	65	65	42	65	59	38	65	52	34	65	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	58	66	66	50	66	66	43	66	53	36	66	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	66	66	58	66	66	47	66	66	41	66	56	37	66	47	33	66	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	60	73	62	44	73	47	37	70	39	32	67	34	28	57	30	25	47	27	22
			Exposed	73	73	69	73	71	66	73	68	55	73	65	46	73	54	40	73	46	37	71	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	75	69	74	70	60	70	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	76	76	74	76	76	70	76	73	67	75	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	60	65	65	51	65	65	45	65	64	40	65	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	65	65	51	65	65	43	65	60	38	65	52	35	65	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	66	66	66	66	66	66	66	66	60	66	66	50	66	66	42	66	61	39	66	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	66	66	42	66	58	38	66	48	34	66	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	59	74	67	50	74	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	74	69	59	74	66	48	74	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	78	71	78	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	78	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	44	63	60	38	63	50	34	63	42	30
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	54	63	63	47	63	63	47	63	61	39	63	48	33	62	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	46	63	60	39	63	48	34	63	40	30	54	36	26
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	53	63	63	45	63	63	40	63	49	34	63	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	67	50	68	55	41	68	44	36	68	38	32
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	54	68	56	41	68	43	35	68	37	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	72	72	66	70	68	53	69	63	43	65	52	38
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	70	73	73	67	73	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	51	63	63	41	63	52	35	63	43	30	55	37	26	46	33	23	40	29	21
			Exposed	63	63	63	63	63	57	63	63	48	63	63	42	63	59	38	63	52	34	63	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	50	63	63	43	63	53	36	63	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	63	63	58	63	63	47	63	63	41	63	56	37	63	47	33	63	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	60	68	62	44	68	47	37	68	39	32	66	34	28	57	30	25	47	27	22
			Exposed	68	68	68	68	68	66	68	68	55	68	65	46	68	54	40	68	46	37	68	41	34	67	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	71	73	69	71	70	60	69	66	46	66	53	39	52	43	34	42	38	30	37	33	27
			Exposed	73	73	73	73	73	70	73	73	67	73	71	62	72	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	60	65	65	51	65	65	45	65	64	40	65	50	34	64	41	29	52	36	25	43	31	22	38	27	29	33	24	26		
			Exposed	65	65	51	65	65	43	65	60	38	65	52	35	65	45	31	63	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	66	66	66	66	66	66	66	66	60	66	66	50	66	66	42	66	61	39	66	52	35	66	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	66	66	42	66	58	38	66	48	34	66	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	59	74	67	50	74	60	43	73	45	36	69	37	31	64	32	27	52	28	23	43	25	21	38	22	28
			Exposed	74	69	59	74	66	48	74	56	41	74	46	37	71	41	34	69	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	78	71	78	75	69	77	72	66	74	69	58	69	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	78	74	68	76	71	65	73	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	44	58	58	38	58	50	34	58	42	30
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	47	58	58	39	58	48	33	58	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	46	59	59	39	59	48	34	59	40	30	54	36	26
			Exposed	59	59	59	59	59	59	59	59	59	59	59	53	59	59	45	59	59	45	59	59	40	59	49	34	59	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	50	63	55	41	63	44	36	63	38	32
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	54	63	63	43	63	63	43	63	56	41	63	43	30	63	43	30	63	32	27	52	28	23	43	25	21
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	72*	66	73*	66	53	65	63	43	63	52	38
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	73*	73*	69	73*	73*	67	73*	68	54	68	61	42	60	48	37	47	40	32	40	36	28	35	32	25			
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	41	58	52	35	58	43	30	55	37	26	46	33	23	40	29	21
			Exposed	58	58	58	58	58	57	58	58	48	58	58	42	58	58	38	58	52	34	58	45	32	56	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	50	59	59	43	59	53	36	59	42	31	55	36	27	43	31	23	38	28	21	34	25	28
			Exposed	59	59	58	59	59	47	59	59	41	59	56	37	59	47	33	59	41	30	59	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	62	44	63	47	37	63	39	32	62	34	28	57	30	25	47	27	22
			Exposed	63	63	63	63	63	63	63	63	55	63	63	46	63	54	40	63	46	37	63	41	34	63	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	73*	60	65	65	46	63	53	39	52	43	34	42	38	30	37	33	27
			Exposed	73*	73*	73*	73*	73*	69	73*	73*	67	73*	69	62	72*	68	53	69	65	45	67	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	60	61	61	51	61	61	45	61	61	40	61	50	34	61	41	29	52	36	25	43	31	22	38	27	29	33	24	26		
			Exposed	61	61	51	61	61	43	61	60	38	61	52	35	61	45	31	61	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	61	61	61	61	61	61	61	61	60	61	61	50	61	61	42	61	61	39	61	52	35	61	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	61	61	42	61	58	38	61	48	34	61	41	31	59	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	59	66	66	50	66	60	43	66	45	36	65	37	31	63	32	27	52	28	23	43	25	21	38	22	28
			Exposed	66	66	59	66	66	48	66	56	41	66	46	37	66	41	34	66	37	31	66	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	71	70	66	69	69	58	67	63	44	62	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	71	71	68	71	71	65	71	68	54	70	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22

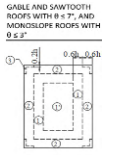
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

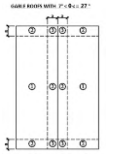
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

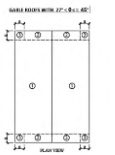
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

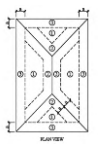












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

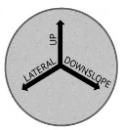
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

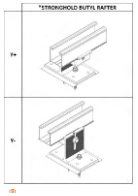
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	34	54	42	30			
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	54	39	54	48	33	54	40	29	51	35	25	43	31	22	38	28	30
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	54	39	54	48	34	54	40	30	54	36	26
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	45	54	54	40	54	49	34	54	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	60	60	55	41	60	44	36	59	38	32
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54	60	56	41	60	43	35	60	37	30	60	32	27	52	28	23	43	25	21
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	53	64*	63*	43	62*	52	38			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	54	65*	62*	42	60	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	41	54	52	35	54	43	30	54	41	30	46	33	23	40	29	21
			Exposed	54	54	54	54	54	54	54	54	48	54	54	42	54	54	38	54	52	34	54	45	32	54	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	36	54	42	31	54	36	27	43	31	23	38	28	21	34	25	28
			Exposed	54	54	54	54	54	47	54	54	41	54	54	37	54	47	33	54	41	30	54	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	44	60	47	37	59	39	32	58	34	28	57	30	25	47	27	22
			Exposed	60	60	60	60	60	60	60	60	55	60	60	46	60	54	40	60	46	37	60	41	34	60	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	60	62*	62*	46	62*	53	39	52	43	34	42	38	30	37	33	27
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	53	65*	65*	45	65*	56	40	53	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	56	56	45	56	56	40	56	50	34	56	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	56	56	51	56	56	43	56	56	38	56	52	35	56	45	31	56	41	29	55	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	50	57	57	42	57	57	39	57	52	35	57	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	57	57	42	57	57	38	57	48	34	57	41	31	57	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	50	62	60	43	62	45	36	61	37	31	60	32	27	52	28	23	43	25	21	38	22	28
			Exposed	62	62	59	62	62	48	62	56	41	62	46	37	62	41	34	62	37	31	62	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	69*	69*	69*	66	68*	68*	58	68*	63	44	61	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	70*	70*	69*	70*	70*	65	70*	69*	54	70*	66	46	67	56	40	61	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	38	50	50	34	50	42	30						
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	39	50	48	33	50	40	29	50	35	25	43	31	22	38	28	30
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	50	39	50	48	34	50	40	30	50	36	26
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	34	50	39	29	50	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	50	59*	55	41	59*	44	36	58*	38	32
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	54	59*	56*	41	59*	43	35	59*	37	30	59*	32	27	52	28	23	43	25	21
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	61*	61*	60*	60*	54*	58*	58*	43
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	61*	42	60*	48	37	47	40	32	40	36	28	35	32	25
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	50	35	50	43	30	50	37	26	46	33	23	40	29	21
			Exposed	50	50	50	50	50	50	50	50	48	50	50	42	50	50	38	50	50	34	50	45	32	50	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	36	50	42	31	50	36	27	43	31	23	38	28	21	34	25	28
			Exposed	50	50	50	50	50	47	50	50	41	50	50	37	50	47	33	50	41	30	50	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	44	59*	47	37	59*	39	32	58*	34	28	56*	30	25	47	27	22
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	55	59*	59*	46	59*	54	40	59*	46	37	59*	41	34	59*	34	28	55	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	60*	60*	60*	59*	59*	46	57*	53	39	52	43	34	42	38	30
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	53	62*	62*	45	62*	57*	40	54*	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	52	52	45	52	52	40	52	50	34	52	41	29	52	36	25	43	31	22	38	27	29	33	24	26
			Exposed	52	52	51	52	52	43	52	52	38	52	52	35	52	45	31	52	41	29	52	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	50	53	53	42	53	53	39	53	52	35	53	40	30	51	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	53	53	42	53	53	38	53	48	34	53	41	31	53	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	45	59	59	46	57*	53	39	52	43	34	42	38	30	37	33	27
			Exposed	59	59	59	59	59	48	59	56	41	59	46	37	59	41	34	59	37	31	59	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	30	24	22	26
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	59*	60*	60*	44	61*	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	54	64*	64*	46	64*	56	40	61*	49	37	52	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	47	34	47	42	30
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	35	43	31	22	38	28	30
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	39	47	47	34	47	40	30	47	36	26
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	55*	55*	41	55*	44	36	55*	38	32
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	41	55*	43	35	55*	37	30	55*	32	27	52*	28	23	43	25	21
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	53*	56*	56*	43	55*	52*	38
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	42	58*	49*	37	48*	40	32	40	36	28	35	32	25
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	35	47	43	30	47	37	26	46	33	23	40	29	21
			Exposed	47	47	47	47	47	47	47	47	47	47	47	42	47	47	38	47	47	34	47	45	32	47	38	27	45	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	36	47	42	31	47	36	27	43	31	23	38	28	21	34	25	28
			Exposed	47	47	47	47	47	47	47	47	41	47	47	37	47	47	33	47	41	30	47	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	18
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	44	55*	47	37	55*	39	32	55*	34	28	54*	30	25	47	27	22
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	46	55*	54*	40	55*	46	37	55*	41	34	55*	34	28	55*	29	24	44	26	21	38	22	28	33	30	25	30	26	22			
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	46	55*	53*	39	52*	43	34	42	38	30	37	33	27
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	53*	58*	58*	45	58*	56*	40	53*	43	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	45	49	49	40	49	49	34	49	41	29	49	36	25	43	31	22	38	27	29	33	24	26
			Exposed	49	49	49	49	49	43	49	49	38	49	49	35	49	45	31	49	41	29	49	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	50	39	50	50	35	50	40	30	50	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	50	50	42	50	50	38	50	48	34	50	41	31	50	38	28	50	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	43	58*	58*	45	58*	45	36	58*	37	31	57*	32	27	52	28	23
			Exposed	58*	58*	58*	58*	58*	48	58*	56*	41	58*	46	37	58*	41	34	58*	37	31	58*	34	28	53	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	59*	59*	58*	58*	58*	44	56*	50	37	48	41	32	40	36	28	35	31	25	31	28	22
			Exposed	61*	61*	61*	61*	61*	54*	61*	61*	46	61*	56*	40	60*	49	37	52*	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22			

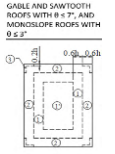
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

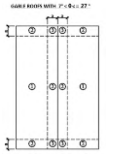
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

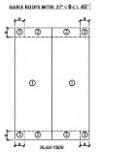
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

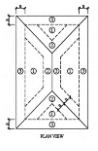












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

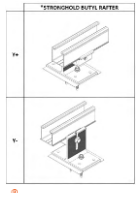
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	38	44	44	34	44	42	30			
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	33	44	40	29	44	35	25	43	31	22	38	28	30
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	39	45	45	34	45	40	30	45	36	26
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	34	45	39	29	45	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41	49*	44	36	49*	38	32
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41	49*	43	35	49*	37	30	49*	32	27	49*	28	23	43	25	21
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44*	52*	52*	38
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43*	52*	48*	37	47*	40	32	40	36	28	35	32	25
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	35	44	43	30	44	44	37	26	44	33	23	40	29	21
			Exposed	44	44	44	44	44	44	44	44	44	44	44	42	44	44	38	44	44	34	44	44	32	44	38	27	44	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	43	45	45	36	45	42	31	45	36	27	43	31	23	38	28	21	34	25	28
			Exposed	45	45	45	45	45	45	45	45	41	45	45	37	45	45	33	45	41	30	45	38	28	44	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44	49*	47*	37	49*	39	32	49*	34	28	49*	30	25	47*	27	22
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	40	49*	46*	37	49*	41	34	49*	34	28	49*	29	24	44	26	21	38	22	28	33	30	25	30	26	22
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	46*	52*	52*	39	52*	43*	34	42	38	30	37	33	27
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45*	52*	52*	40	52*	44*	34	41	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	40	47	47	34	47	41	29	47	36	25	43	31	22	38	27	29	33	24	26
			Exposed	47	47	47	47	47	43	47	47	38	47	47	35	47	45	31	47	41	29	47	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	39	47	47	35	47	40	30	47	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	47	47	42	47	47	38	47	47	34	47	41	31	47	38	28	47	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	55*	55*	43	55*	45	36	55*	37	31	54*	32	27	52*	28	23	43	25	21	38	22	28
			Exposed	55*	55*	55*	55*	55*	48	55*	55*	41	55*	46	37	55*	41	34	55*	37	31	55*	34	28	53*	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	44	54*	50*	37	48*	41	32	40	36	28	35	31	25	31	28	22
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	46	58*	56*	40	58*	49*	37	52*	42	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	42	30			
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	33	42	42	29	42	35	25	42	31	22	38	28	30
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	34	42	40	30	42	36	26
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	42	39	29	42	34	25	41	30	22	36	26	29	32	23	26
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	44*	36	47*	38	32
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	43*	35	47*	37	30	47*	32	27	47*	28	23	43*	25	21
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	47*	38
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	37	47*	40*	32	40*	36	28	35	32	25
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	35	42	42	30	42	42	37	26	42	33	23	40	29	21
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	34	42	42	32	42	38	27	42	32	23	38	28	30	33	24	26	29	22	23	26	29	21
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	36	42	42	31	42	36	27	42	31	23	38	28	21	34	25	28
			Exposed	42	42	42	42	42	42	42	42	41	42	42	37	42	42	33	42	41	30	42	38	28	42	32	24	37	27	20	32	24	26	28	21	23	25	28	20	22	24	~~18~~
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	37	47*	39	32	47*	34	28	47*	30	25	47*	27	22
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	46*	47*	47*	40	47*	46*	37	47*	41*	34	47*	34	28	47*	29	24	44*	26	21	38	22	28	33	30	25	30	26	22			
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	49*	47*	47*	47*	47*	47*	47*	47*	47*	46*	47*	47*	39*	47*	43*	34	42*	38	30	37	33	27
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	40*	47*	43*	34	41*	37	29	36	32	25	31	28	22	28	25	30	24	22	26
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	34	44	41	29	44	36	25	43	31	22	38	27	29	33	24	26
			Exposed	44	44	44	44	44	43	44	44	38	44	44	35	44	44	31	44	41	29	44	37	26	43	31	22	37	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	39	45	45	35	45	40	30	45	35	26	41	30	22	36	26	29	32	23	26	28	21	23
			Exposed	45	45	42	45	45	38	45	45	34	45	41	31	45	38	28	45	34	25	43	31	23	36	27	30	31	23	25	27	30	22	24	26	~~19~~	21	23	~~17~~	28	20	~~15~~
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43	49*	45*	36	49*	37	31	49*	32	27	49*	28	23	43	25	21	38	22	28
			Exposed	49*	49*	49*	49*	49*	48*	49*	49*	41	49*	46*	37	49*	41	34	49*	37	31	49*	34	28	49*	29	24	42	25	20	36	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44*	52*	50*	37	48*	41	32	40	36	28	35	31	25	31	28	22
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	46*	52*	52*	40	52*	49*	37	52*	43*	34	40	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22

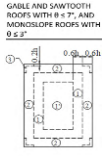
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

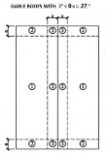
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

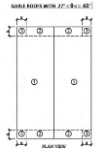
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

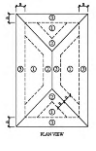












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

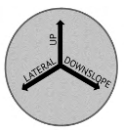
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

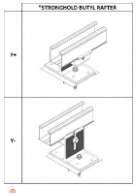
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	102	89	102	98	85	102	91	79	98	85	73	92	80	69	86	75	64	82	71	57	78	68	50
			Exposed	102	102	92	102	101	88	102	96	83	102	92	80	102	88	76	98	84	73	94	81	70	87	76	65	81	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	95	82	102	87	75	95	81	70	88	75	65	82	71	57	77	67	50	73	60	44
			Exposed	102	102	89	102	98	84	102	93	80	102	88	76	99	84	73	94	80	70	90	77	67	83	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	83	103	84	77	99	78	71	93	73	67	87	69	60	83	65	54
			Exposed	103	103	99	103	103	93	103	97	88	103	92	84	103	87	80	103	83	76	101	80	73	93	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	64
			Exposed	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	102	102	95	102	102	90	102	99	85	102	94	82	102	90	78	100	86	75	96	83	72	89	77	67	83	72	59	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	102	90	78	99	86	74	94	82	71	90	78	68	86	75	64	83	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	102	102	92	102	101	87	102	95	82	102	90	78	102	86	75	97	82	71	93	79	68	85	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	102	86	74	96	81	71	90	77	67	86	74	62	82	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	103	103	102	103	103	96	103	100	91	103	95	86	103	90	82	103	86	78	103	82	75	96	76	69	89	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	103	90	82	103	85	77	102	80	73	97	76	70	92	73	67	88	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	103	103	103	103	103	103	103	103	98	103	102	93	103	98	88	103	93	85	98	90	81	90	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	103	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	102	101	87	102	95	83	102	91	79	100	87	75	96	83	72	92	80	69	88	77	67	82	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	96	83	72	91	79	68	87	75	65	83	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	41	29
		7-20	Interior	102	97	84	102	92	79	102	87	75	97	83	72	92	79	68	88	75	65	84	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	92	79	68	87	74	64	82	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	103	102	92	103	96	87	103	91	83	103	86	78	103	82	75	99	78	72	95	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	103	82	75	98	77	71	93	74	67	89	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	91	79	95	85	73	92	80	69	86	75	64	82	71	57	78	68	50
			Exposed	95	95	92	95	95	88	95	95	83	95	92	80	95	88	76	95	84	73	94	81	70	87	76	65	81	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	95	82	96	87	75	95	81	70	88	75	65	82	71	57	77	67	50	73	60	44
			Exposed	96	96	89	96	96	84	96	93	80	96	88	76	96	84	73	94	80	70	90	77	67	83	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	83	100	84	77	99	78	71	93	73	67	87	69	60	83	65	54
			Exposed	100	100	99	100	100	93	100	97	88	100	92	84	100	87	80	100	83	76	100	80	73	93	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	64
			Exposed	102	102	102	102	102	100	102	102	95	102	100	90	102	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	82	95	90	78	95	86	75	95	83	72	89	77	67	83	72	59	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	95	90	78	95	86	74	94	82	71	90	78	68	86	75	64	83	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	96	96	92	96	96	87	96	95	82	96	90	78	96	86	75	96	82	71	93	79	68	85	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	96	86	74	96	81	71	90	77	67	86	74	62	82	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	100	100	100	100	100	96	100	100	91	100	95	86	100	90	82	100	86	78	100	82	75	96	76	69	89	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	100	90	82	100	85	77	100	80	73	97	76	70	92	73	67	88	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	98	88	102	93	85	98	90	81	90	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	102	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	95	95	87	95	95	83	95	91	79	95	87	75	95	83	72	92	80	69	88	77	67	82	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	95	83	72	91	79	68	87	75	65	83	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	41	29
		7-20	Interior	96	96	84	96	92	79	96	87	75	96	83	72	92	79	68	88	75	65	84	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	92	79	68	87	74	64	82	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	101	101	92	101	96	87	101	91	83	101	86	78	101	82	75	99	78	72	95	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	101	82	75	98	77	71	93	74	67	89	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	79	86	85	73	86	80	69	86	75	64	82	71	57	78	68	50
			Exposed	86	86	86	86	86	86	86	86	86	86	86	80	86	86	76	86	84	73	86	81	70	86	76	65	81	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	87	75	87	81	70	87	75	65	82	71	57	77	67	50	73	60	44
			Exposed	87	87	87	87	87	84	87	87	80	87	87	76	87	84	73	87	80	70	87	77	67	83	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	83	92	84	77	92	78	71	92	73	67	87	69	60	83	65	54
			Exposed	92	92	92	92	92	92	92	92	88	92	92	84	92	87	80	92	83	76	92	80	73	92	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	92	83	93	86	77	87	80	73	81	76	69	77	72	64
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	86	75	86	83	72	86	77	67	83	72	59	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	86	86	78	86	86	74	86	82	71	86	78	68	86	75	64	83	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	87	87	87	87	87	87	87	87	82	87	87	78	87	86	75	87	82	71	87	79	68	85	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	87	86	74	87	81	71	87	77	67	86	74	62	82	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	92	92	92	92	92	92	92	92	91	92	92	86	92	90	82	92	86	78	92	82	75	92	76	69	89	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	92	90	82	92	85	77	92	80	73	92	76	70	92	73	67	88	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	93	96	96	88	96	93	85	96	90	81	90	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	96	96	88	96	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	80	69	86	77	67	82	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	86	83	72	86	79	68	86	75	65	83	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	41	29
		7-20	Interior	87	87	84	87	87	79	87	87	75	87	83	72	87	79	68	87	75	65	84	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	87	79	68	87	74	64	82	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	94	94	92	94	94	87	94	91	83	94	86	78	94	82	75	94	78	72	94	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	94	82	75	94	77	71	93	74	67	89	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	97	97	97	97	94	97	97	97	89	97	94	85	97	90	81	93	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	97	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37

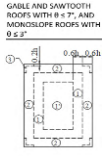
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

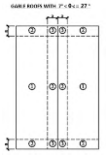
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

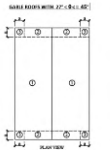
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

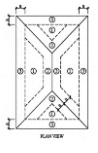












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

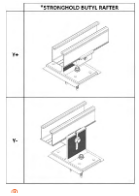
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	80	80	75	64	80	71	57	78	68	50			
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	76	65	80	71	56	76	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	71	57	77	67	50	73	60	44
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	77	67	80	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	84	77	87	78	71	87	73	67	87	69	60	83	65	54
			Exposed	87	87	87	87	87	87	87	87	87	84	87	87	80	87	83	76	87	80	73	87	74	67	87	69	59	81	62	51	76	54	45	72	48	40	69	42	35			
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	86	77	87	80	73	81	76	69	77	72	64
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42			
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	80	77	67	80	72	67	78	68	51	74	63	44	70	55	39	66	49	35		
			Exposed	80	80	78	80	80	74	80	80	71	80	78	68	80	75	64	80	72	58	79	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	71	80	79	68	80	73	60	79	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	80	80	74	80	80	71	80	77	67	80	74	62	80	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	87	82	87	87	82	87	86	78	87	82	75	87	76	69	87	70	63	83	66	54	78	57	47	74	51	42	70	45	37
			Exposed	87	87	82	87	85	77	87	80	73	87	76	70	87	73	67	87	70	62	85	67	57	79	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	85	90	90	81	89	83	75	83	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	90	90	88	90	90	84	90	88	79	90	84	76	86	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	80	69	80	77	67	80	72	57	77	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	80	80	72	80	79	68	80	75	65	80	72	58	79	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	35	29
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	72	80	79	68	80	75	65	80	72	60	78	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	80	79	68	80	74	64	80	71	57	78	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	33	35	39	29	47	34	26
		20-27	Interior	88	88	88	88	88	87	88	88	83	88	86	78	88	82	75	88	78	72	88	75	69	88	69	61	82	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	88	82	75	88	77	71	88	74	67	88	70	62	85	67	57	81	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	90	81	92	86	78	89	82	74	82	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	92	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	64	78	71	57	78	68	50
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	76	65	78	71	56	76	67	48	72	59	42	68	52	37	64	46	50			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	71	57	77	67	50	73	60	44
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	57	77	66	49	71	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	60	82	65	54
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	76	82	80	73	82	74	67	82	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	77	84	80	73	81	76	69	77	72	64
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42			
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	58	78	68	51	74	63	44	70	55	39	66	49	35
			Exposed	78	78	78	78	78	74	78	78	71	78	78	68	78	75	64	78	72	58	78	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	71	78	78	68	78	73	60	78	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	78	78	74	78	78	71	78	77	67	78	74	62	78	70	56	78	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
	D	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	56	76	67	48	72	59	42	68	52	37	64	46	50			
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	71	57	77	67	50	73	60	44
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	56	76	67	48	72	59	42	68	52	37	64	46	50	54	39	44
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	60	82	65	54
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	76	82	80	73	82	74	67	82	69	59	81	62	51	76	54	45	72	48	40	69	42	35
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	77	84	80	73	81	76	69	77	72	64
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	62	70	67	54	66	60	48	59	53	42			
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	64	74	71	57	74	68	50
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	56	74	67	48	72	59	42	68	52	37	64	46	50
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	71	57	75	67	50	73	60	44
			Exposed	75	75	75	75	75	75	75	75	75	75	75	73	75	75	70	75	75	67	75	71	57	75	66	49	71	57	43	67	50	37	60	44	50	54	39	44			
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	71	78	73	67	78	69	60	78	65	54
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	73	78	78	73	78	78	73	78	78	73	78	78	73	78	78	73	78	78	73	78	78	73
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	77	81	80	73	79	76	69
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	79	83	81	73	81	75	71	62	70	67	54	66	60	48	59	53	42			
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	67	74	72	59	74	68	51	74	63	44	70	55	39	66	49	35
			Exposed	74	74	74	74	74	74	74	74	71	74	74	68	74	74	64	74	72	58	74	69	53	74	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	68	75	73	60	75	68	52	73	61	45	69	53	39	64	47	35	57	42	46
			Exposed	75	75	74	75	75	71	75	75	67	75	74	62	75	70	56	75	67	51	75	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	31
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	76	69	78	70	63	78	66	54	77	57	47	74	51	42	70	45	37
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	62	78	67	57	78	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	81	75	80	77	70	77	73	65	72	68	57	68	63	50	63	56	45
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	72	76	76	69	76	76	67	76	72	57	76	67	49	72	60	42	68	52	37	63	46	49	56	41	44			
			Exposed	76	76	72	76	76	68	76	75	65	76	72	58	76	69	53	76	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	39	47	35	29
		7-20	Interior	76	76	76	76	76	76	76	76	75	76	76	72	76	76	68	76	75	65	76	72	60	76	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39
			Exposed	76	76	68	76	74	64	76	71	57	76	68	52	75	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	33	35	39	29	47	34	26
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	72	80	75	69	80	69	61	80	63	52	77	55	45	72	48	40	68	42	35	64	37	47
			Exposed	80	80	75	80	77	71	80	74	67	80	70	62	80	67	57	80	62	52	78	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	83	82	74	81	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	84	84	81	84	84	77	84	81	73	83	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37

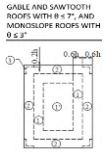
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

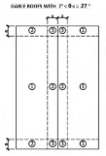
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

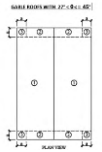
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

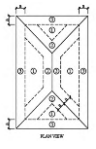












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

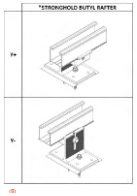
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	64	69	69	57	69	68	50
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	56	69	67	48	69	59	42	68	52	37	64	46	50
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	57	70	67	50	70	60	44
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	57	70	66	49	70	57	43	67	50	37	60	44	50	54	39	44
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	73	67	75	69	60	75	65	54
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	74	67	75	69	59	75	62	51	75	54	45	72	48	40	69	42	35
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	64
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	51	69	63	44	69	55	39	66	49	35
			Exposed	69	69	69	69	69	69	69	69	69	68	69	69	64	69	69	58	69	69	53	69	69	53	69	63	45	69	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	60	70	68	52	70	61	45	69	53	39	64	47	35	57	42	46
			Exposed	70	70	70	70	70	70	70	70	67	70	70	62	70	70	56	70	67	51	70	63	47	69	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	91
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	63	75	66	54	74	57	47	73	51	42	70	45	37
			Exposed	75	75	75	75	75	75	75	75	73	75	75	70	75	73	67	75	70	62	75	67	57	75	58	48	73	50	41	69	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	73	65	72	68	57	68	63	50	63	56	45
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	72	80	77	70	79	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44		
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	72	57	73	67	49	72	60	42	68	52	37	63	46	49	56	41	44
			Exposed	73	73	72	73	73	68	73	73	65	73	72	58	73	69	53	73	67	48	73	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	99	37	41	99
		7-20	Interior	73	73	73	73	73	73	73	73	73	72	73	73	68	73	73	65	73	72	60	73	67	50	72	58	43	67	51	38	60	44	49	53	39	44	47	35	39		
			Exposed	73	73	68	73	73	64	73	71	57	73	68	52	73	63	47	72	58	43	69	53	39	61	45	50	52	38	43	45	50	37	40	44	99	35	39	29	47	34	26
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	72	77	75	69	77	69	61	76	63	52	75	55	45	72	48	40	68	42	35	64	37	47
			Exposed	77	77	75	77	77	71	77	74	67	77	70	62	77	67	57	77	62	52	77	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	91
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	80	80	74	78	76	69	76	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	81	81	81	81	81	81	81	81	73	81	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	57	65	65	50
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	48	65	59	42	65	52	37	64	46	50
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	50	65	60	44
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	50	65	54	39	64	44	50
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	60	72	65	54
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	59	72	62	51	72	54	45	72	48	40	69	42	35
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	75	75	73	74	74	69	73	72	64
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	44	65	55	39	65	49	35
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	58	65	65	53	65	63	45	65	54	39	64	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	50	65	60	44
			Exposed	65	65	65	65	65	65	65	65	65	65	65	62	65	65	56	65	65	51	65	63	47	65	54	40	63	46	34	54	40	45	47	35	39	42	46	34	37	41	91
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	70	63	72	66	54	71	57	47	70	51	42	68	45	37
			Exposed	72	72	72	72	72	72	72	72	72	70	72	72	67	72	70	62	72	67	57	72	58	48	72	50	41	69	43	36	64	38	47	56	33	42	50	45	37		
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	75	74	74	70	73	73	65	72	68	57	68	63	50	63	56	45
			Exposed	77	77	77	77	77	77	77	77	77	76	77	77	72	77	77	70	77	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44		
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	57	68	62	49	68	60	42	68	52	37	63	46	49	56	41	44
			Exposed	68	68	68	68	68	68	68	68	65	68	68	58	68	68	53	68	67	48	68	62	44	68	53	37	62	45	49	54	39	42	47	34	37	41	46	99	37	41	99
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	50	68	58	43	67	51	38	60	44	49	53	39	44	47	35	39		
			Exposed	68	68	68	68	68	64	68	68	57	68	68	52	68	63	47	68	58	43	68	53	39	61	45	50	52	38	43	45	50	37	40	44	99	35	39	29	47	34	26
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	69	61	74	63	52	73	55	45	72	48	40	68	42	35	64	37	47
			Exposed	74	74	74	74	74	71	74	74	67	74	70	62	74	67	57	74	62	52	74	57	47	73	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	91
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	78	77	77	74	76	76	69	74	71	63	71	67	54	66	60	48	59	53	42	52	47	37
			Exposed	79	79	79	79	79	79	73	79	77	70	79	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37		
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	50
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	48	61	59	42	61	52	37	61	46	50
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	50	61	60	44
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	61	61	61	49	61	57	43	61	50	37	60	44	50
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	60	68	65	54
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	59	68	62	51	68	59	48	64	54	45	68	48	40	64	42	35
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	81*	81*	74	73	73	73	72	72	69	70	70	64
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73	79*	75	68	74	71	62	70	67	54	66	60	48	59	53	42
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	61	44	61	55	39	61	49	35
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	45	61	54	39	61	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	52	61	61	45	61	53	39	61	47	35	57	42	46
			Exposed	61	61	61	61	61	61	61	61	61	61	61	56	61	61	51	61	61	47	61	61	47	61	54	40	61	46	34	54	40	45	47	35	39	42	46	34	37	41	91
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	66	54	67	57	47	66	51	42	65	45	37
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	62	68	67	57	68	58	48	68	50	41	68	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	83*	83*	73	72	72	70	71	71	65	69	68	57	67	63	50	63	56	45
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	75	79*	79*	72	79*	75	70	79*	74	67	73	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	57	64	64	49	64	60	42	64	52	37	63	46	49	56	41	44
			Exposed	64	64	64	64	64	64	64	64	64	58	64	64	53	64	64	48	64	62	44	64	53	37	62	45	49	54	39	42	47	34	37	41	46	99	37	41	99		
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	50	64	64	51	38	60	44	49	53	39	44	47	39
			Exposed	64	64	64	64	64	64	64	64	57	64	64	52	64	63	47	64	58	43	64	53	39	61	45	50	52	38	43	45	50	37	40	44	99	35	39	29	47	34	26
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	71	69	61	71	63	52	70	55	45	68	48	40	67	42	35	64	37	47
			Exposed	71	71	71	71	71	71	67	71	70	62	71	67	57	71	62	52	71	57	47	71	48	40	68	41	34	61	36	45	53	47	39	47	42	35	42	37	91		
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	76	76	76	76	76	75	75	74	74	74	69	72	71	63	70	67	54	66	60	48	59	53	42	52	47	37			
			Exposed	77	77	77	77	77	77	73	77	77	70	76	74	67	75	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37		

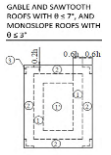
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

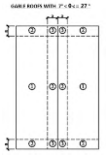
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

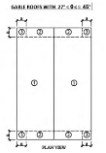
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

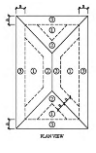












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

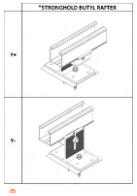
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	48	57	57	42	57	52	37	57	46	50
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	58	58	50	58	58	44
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	49	58	57	43	58	50	37	58	44	50	54	39	44
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	62	51	64	54	45	64	48	40	64	42	35
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	72*	71*	71*	64
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68	72*	71*	62	71*	67	54	66	60	48	59	53	42
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	51	57	57	57	44	57	55	39	57	49	35
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	45	57	54	39	57	47	33	56	41	44	50	36	39	44	49	35
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	52	58	58	45	58	53	39	58	47	35	57	42	46
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	51	58	58	47	58	54	40	58	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	54	64	57	47	64	51	42	63	45	37
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	57	64	58	48	64	50	41	64	43	36	64	38	47	56	33	42	50	45	37
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	74*	74*	74*	72*	72*	69	71*	71*	65	72*	66	57	65	63	50	63	56	45
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	73*	69	58	68	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	60	60	42	60	52	37	60	46	49	56	41	44
			Exposed	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	60	60	48	60	60	44	60	53	37	60	45	49	54	39	42	47	34	37	41	46	39	37	41	29
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	50	61	58	43	61	51	38	60	44	49	53	39	44	47	35	39
			Exposed	61	61	61	61	61	61	61	61	61	57	61	61	52	61	61	47	61	58	43	61	53	39	61	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	63	52	67	55	45	66	48	40	64	42	35	63	37	47
			Exposed	67	67	67	67	67	67	67	67	67	62	67	67	57	67	62	52	67	57	47	67	57	47	67	48	40	67	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	78*	78*	78*	73	72	72	69	70	70	63	68	67	54	66	60	48	59	53	42	52	47	37
			Exposed	79*	79*	79*	79*	79*	74	79*	79*	73	79*	74	70	79*	74	67	74	71	62	72	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	54	42	54	52	37	54	46	50
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	44
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	49	55	55	43	55	50	37	55	44	50
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	54
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	54	45	61	48	40	61	42	35
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	66*	65*	65*	65*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62	68*	67*	54	66*	60	48	59	53	42
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	44	54	54	39	54	49	35
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	45	54	54	39	54	47	33	54	41	44	50	36	39	44	49	35
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	45	55	55	45	55	53	39	55	47	35	55	42	46
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	47	55	54	40	55	46	34	54	40	45	47	35	39	42	46	34	37	41	41
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	58	48	61	50	41	61	43	36	61	38	47	56	33	42
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54	61	57	47	61	51	42	60	45	37
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	65*	65*	65*	67*	67*	57
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	58	67*	62	49	60	54	43	53	47	38	46	42	50	41	37	44
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	49	57	57	42	57	52	37	57	46	49	56	41	44
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	57	44	57	53	37	57	45	49	54	39	42	47	34	37	41	46	39	37	41	29
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	58	43	58	51	38	58	44	49	53	39	44	47	35	39
			Exposed	58	58	58	58	58	58	58	58	57	58	58	52	58	58	47	58	58	43	58	53	39	58	45	50	52	38	43	45	50	37	40	44	39	35	39	29	47	34	26
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	63	52	64	55	45	63	48	40	62	42	35	61	37	47
			Exposed	64	64	64	64	64	64	64	64	64	62	64	64	57	64	62	52	64	57	47	64	48	40	64	41	34	61	36	45	53	47	39	47	42	35	42	37	31
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	69	73*	71*	63	71*	66	54	64	60	48	59	53	42	52	47	37
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	72*	71*	62	72*	68	57	67	60	48	58	52	41	50	45	36	44	39	47	39	35	42	34	47	37

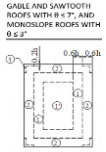
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

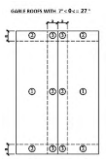
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

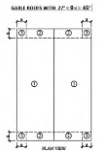
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

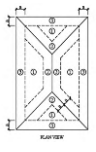












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

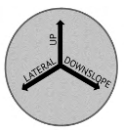
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

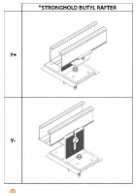
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	80	71	81	77	68	81	72	59	77	68	46	73	61	37	69	50	32	66	42	28	56	35	25
			Exposed	81	81	73	81	79	70	81	76	67	81	73	61	80	70	52	77	68	45	74	65	39	69	51	32	65	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	80	70	51	75	66	38	71	50	32	67	40	28	56	33	25	45	30	22
			Exposed	81	81	71	81	77	68	81	74	64	81	71	53	78	68	44	75	64	38	72	54	34	67	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	73	67	82	68	54	78	59	42	74	46	34	70	37	30	67	32	27
			Exposed	82	82	78	82	80	74	82	77	71	82	73	68	82	70	64	82	68	53	79	64	45	74	47	34	70	36	29	66	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	77	82	78	72	79	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	82	82	82	82	82	79	82	82	75	82	78	72	81	75	69	78	73	67	75	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	81	81	75	81	81	81	81	78	69	81	75	66	81	72	57	79	69	49	76	67	43	71	55	34	67	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	81	72	57	78	69	47	75	66	40	72	57	35	69	49	32	67	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	58	80	69	49	76	67	41	74	60	36	69	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	79	69	48	76	66	40	72	56	34	69	46	31	67	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	82	82	80	82	82	76	82	78	72	82	75	69	82	72	67	82	69	59	81	67	50	76	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	82	72	67	82	69	56	80	66	46	77	54	38	74	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	72	66	72	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	82	77	71	79	73	68	76	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	81	79	70	81	75	67	81	72	59	79	69	50	76	67	43	73	61	37	71	54	34	66	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	76	67	43	72	59	36	69	50	32	67	44	29	60	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	81	77	68	81	73	61	80	70	50	77	67	42	74	60	35	71	51	32	68	43	30	57	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	~~19~~
			Exposed	73	60	35	70	49	32	67	40	28	59	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	82	80	74	82	76	70	82	73	67	82	70	60	81	67	50	78	60	42	75	50	36	70	37	30	66	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	81	67	49	77	57	40	74	47	34	71	39	31	68	34	28	66	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	~~19~~	23	21	~~17~~	21	~~16~~	~~15~~
		27-45	Interior	82	82	78	82	81	75	82	78	71	80	74	69	77	72	66	74	69	57	71	67	49	67	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	77	71	66	73	68	54	70	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	~~18~~
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	72	59	76	68	46	73	61	37	69	50	32	66	42	28	56	35	25
			Exposed	76	76	73	76	76	70	76	76	67	76	73	61	76	70	52	76	68	45	74	65	39	69	51	32	65	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	75	66	76	70	51	75	66	38	71	50	32	67	40	28	56	33	25	45	30	22
			Exposed	76	76	71	76	76	68	76	74	64	76	71	53	76	68	44	75	64	38	72	54	34	67	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	73	67	79	68	54	78	59	42	74	46	34	70	37	30	67	32	27
			Exposed	79	79	78	79	79	74	79	77	71	79	73	68	79	70	64	79	68	53	79	64	45	74	47	34	70	36	29	66	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	57	76	69	49	76	67	43	71	55	34	67	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	76	72	57	76	69	47	75	66	40	72	57	35	69	49	32	67	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	58	76	69	49	76	67	41	74	60	36	69	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	76	69	48	76	66	40	72	56	34	69	46	31	67	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	59	79	67	50	76	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	79	72	67	79	69	56	79	66	46	77	54	38	74	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	81	77	71	79	73	68	76	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	76	76	70	76	75	67	76	69	50	76	67	43	73	61	37	71	54	34	66	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22	28	22	22
			Exposed	76	67	43	72	59	36	69	50	32	67	44	29	60	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	76	76	73	76	76	68	76	74	64	76	71	53	76	68	44	75	64	38	72	54	34	67	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
			Exposed	73	60	35	70	49	32	67	40	28	59	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	59	79	67	50	76	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	79	72	67	79	69	56	79	66	46	77	54	38	74	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	57	76	69	49	76	67	43	71	55	34	67	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	76	72	57	76	69	47	75	66	40	72	57	35	69	49	32	67	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	58	76	69	49	76	67	41	74	60	36	69	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	76	69	48	76	66	40	72	56	34	69	46	31	67	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	59	79	67	50	76	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	79	72	67	79	69	56	79	66	46	77	54	38	74	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	59	67	67	46	67	61	37	67	50	32	66	42	28	56	35	25
			Exposed	67	67	67	67	67	67	67	67	67	67	67	61	67	67	52	67	67	45	67	65	39	67	51	32	65	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	51	67	66	38	67	50	32	67	40	28	56	33	25	45	30	22
			Exposed	67	67	67	67	67	67	67	67	64	67	67	53	67	67	44	67	64	38	67	54	34	67	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	67	73	68	54	73	59	42	73	46	34	70	37	30	67	32	27
			Exposed	73	73	73	73	73	71	73	73	68	73	70	64	73	68	53	73	64	45	73	47	34	70	36	29	66	31	25	53	27	22	43	24	20	36	21	26	32	28	23
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	73	67	74	69	56	70	64	45	66	52	36	55	43	32
			Exposed	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	73	67	75	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21	
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	66	67	67	57	67	67	49	67	67	43	67	55	34	67	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	67	67	57	67	67	47	67	66	40	67	57	35	67	49	32	67	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	58	67	67	49	67	67	41	67	60	36	67	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	67	67	48	67	66	40	67	56	34	67	46	31	67	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	59	73	67	50	73	52	37	71	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	73	72	67	73	69	56	73	66	46	73	54	38	73	45	34	71	38	31	68	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	74	76	76	76	71	76	76	68	76	72	66	72	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	76	76	71	76	73	68	76	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	67	67	67	67	67	67	67	67	59	67	67	50	67	67	43	67	61	37	67	54	34	66	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	67	67	43	67	59	36	67	50	32	67	44	29	60	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	67	67	67	67	67	67	67	67	50	67	67	42	67	60	35	67	51	32	67	43	30	57	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	~~19~~
			Exposed	67	60	35	67	49	32	67	40	28	59	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	74	74	74	74	74	70	74	73	67	74	70	60	74	67	50	74	60	42	74	50	36	70	37	30	66	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	74	67	49	74	57	40	74	47	34	71	39	31	68	34	28	66	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	~~19~~	23	21	~~17~~	21	~~16~~	~~15~~
		27-45	Interior	77	77	77	77	77	75	77	77	71	77	74	69	77	72	66	74	69	57	71	67	49	67	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	77	71	66	73	68	54	70	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	~~18~~

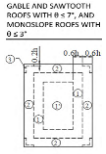
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

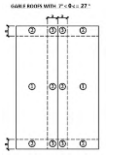
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

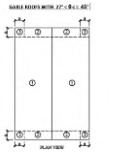
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

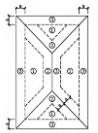












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

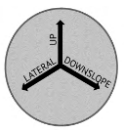
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

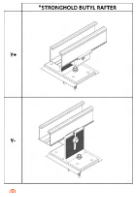
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	46	60	60	37	60	50	32	60	60	42	28	56	35	25
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	52	60	60	45	60	60	39	60	51	32	60	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	51	60	60	38	60	50	32	60	51	40	28	56	33	25	45	30	22
			Exposed	60	60	60	60	60	60	60	60	60	60	60	53	60	60	44	60	60	38	60	54	34	60	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	46	34	67	67	37	30	67	32	27					
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	53	67	64	45	67	47	34	67	36	29	66	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	56	70	64	45	66	52	36	55	43	32	
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	61	70	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	60	60	43	60	55	34	60	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	60	60	57	60	60	47	60	60	40	60	57	35	60	49	32	60	43	29	60	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	60	41	60	60	36	60	45	30	60	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	60	60	48	60	60	40	60	56	34	60	46	31	60	39	28	59	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	59	67	67	50	67	52	37	67	39	31	67	33	27	58	28	24	47	25	21	39	22	28
			Exposed	67	67	67	67	67	56	67	66	46	67	54	38	67	45	34	67	38	31	67	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	71	67	50	67	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	72	72	71	72	72	72	68	72	70	62	72	68	52	70	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	60	60	60	60	60	60	60	60	59	60	60	50	60	60	43	60	60	37	60	54	34	60	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	60	60	43	60	59	36	60	50	32	60	44	29	60	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	60	60	60	60	60	60	60	60	50	60	60	42	60	60	35	60	51	32	60	43	30	57	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	~~19~~
			Exposed	60	60	35	60	49	32	60	40	28	59	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	60	69	67	50	69	60	42	69	50	36	69	37	30	66	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	69	67	49	69	57	40	69	47	34	69	39	31	68	34	28	66	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	~~19~~	23	21	~~17~~	21	~~16~~	~~15~~
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	69	73	72	66	73	69	57	71	67	49	67	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	73	71	66	73	68	54	70	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	~~18~~
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	46	58	58	37	58	50	32	58	42	28	56	35	25	
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	52	58	58	45	58	58	39	58	51	32	58	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	38	58	50	32	58	40	28	56	33	25	45	30	22
			Exposed	58	58	58	58	58	58	58	58	58	58	58	53	58	58	44	58	58	38	58	54	34	58	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	54	62	59	42	62	46	34	62	37	30	62	32	27
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	53	62	62	45	62	47	34	62	36	29	62	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	56	65	64	45	63	52	36	55	43	32
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	65	45	66	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	49	58	58	43	58	55	34	58	44	29	57	36	25	46	31	22	39	27	29	33	24	26
			Exposed	58	58	57	58	58	47	58	58	40	58	57	35	58	49	32	58	43	29	58	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	49	58	58	41	58	58	36	58	45	30	58	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	58	58	48	58	58	40	58	56	34	58	46	31	58	39	28	58	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	50	62	52	37	62	39	31	62	33	27	58	28	24	47	25	21	39	22	28
			Exposed	62	62	62	62	62	56	62	62	46	62	54	38	62	45	34	62	38	31	62	34	28	59	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	50	64	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	67	67	67	67	67	67	67	67	62	67	67	52	67	63	44	67	54	38	61	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	60	60	60	60	60	60	60	60	59	60	60	50	60	60	43	60	60	37	60	54	34	60	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	60	60	43	60	59	36	60	50	32	60	44	29	60	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	60	60	60	60	60	60	60	60	50	60	60	42	60	60	35	60	51	32	60	43	30	57	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	~~19~~
			Exposed	60	60	35	60	49	32	60	40	28	59	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	60	64	64	50	64	60	42	64	50	36	64	37	30	64	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	64	64	49	64	57	40	64	47	34	64	39	31	64	34	28	64	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	~~19~~	23	21	~~17~~	21	~~16~~	~~15~~
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	57	67	67	49	65	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	69	69	66	69	68	54	69	65	45	67	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	~~18~~
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	46	53	53	37	53	50	32	53	42	28	53	35	25	
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	45	53	53	39	53	51	32	53	40	28	52	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	38	54	50	32	54	40	28	54	33	25	45	30	22
			Exposed	54	54	54	54	54	54	54	54	54	54	54	53	54	54	44	54	54	38	54	54	34	54	41	28	54	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	42	58	46	34	58	37	30	58	32	27
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	45	58	47	34	58	43	24	20	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	56	63*	63*	45	62*	52	36	55	43	32
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	45	63*	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	43	53	53	34	53	44	29	53	36	25	46	31	22	39	27	29	33	24	26
			Exposed	53	53	53	53	53	47	53	53	40	53	53	35	53	49	32	53	43	29	53	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	41	54	54	36	54	45	30	54	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	54	54	48	54	54	40	54	54	34	54	46	31	54	39	28	54	34	25	50	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	52	37	58	39	31	58	33	27	57	28	24	47	25	21	39	22	28
			Exposed	58	58	58	58	58	56	58	58	46	58	54	38	58	45	34	58	38	31	58	34	28	58	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	50	62*	56	39	56	44	32	43	36	28	35	31	25	31	28	22
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	52	63*	63*	44	63*	54	38	62*	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	50	56	56	43	56	56	37	56	54	34	56	42	28	53	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	56	56	43	56	56	36	56	50	32	56	44	29	56	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	56	56	56	56	56	56	56	56	50	56	56	42	56	56	35	56	51	32	56	43	30	56	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	~~19~~
			Exposed	56	56	35	56	49	32	56	40	28	56	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	42	60	50	36	60	37	30	60	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	60	60	49	60	57	40	60	47	34	60	39	31	60	34	28	60	31	26	58	28	23	44	24	20	35	21	26	30	27	22	26	24	~~19~~	23	21	~~17~~	21	~~16~~	~~15~~
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	57	66*	66*	49	66*	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	28
			Exposed	67*	67*	66*	67*	67*	54	67*	66*	45	67*	55	38	61	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	~~18~~

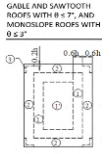
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

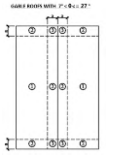
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

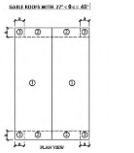
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

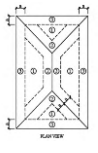












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

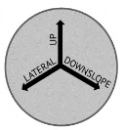
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

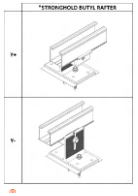
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	37	49	49	32	49	46	28	49	35	25			
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	45	49	49	39	49	49	32	49	40	28	49	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	38	49	49	32	49	40	28	49	33	25	45	30	22			
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	38	49	49	34	49	41	28	49	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	42	57*	46	34	57*	37	30	57*	32	27			
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	53	57*	57*	45	57*	47	34	57*	36	29	57*	31	25	53	27	22	43	24	20	36	21	26
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	58*	58*	45	56*	53*	36	55*	43	32			
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	45	59*	51	35	50	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	34	49	44	29	49	36	25	46	31	22	39	27	29	33	24	26
			Exposed	49	49	49	49	49	47	49	49	40	49	49	35	49	49	32	49	43	29	49	49	38	26	47	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	49	36	49	45	30	49	45	30	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	49	49	48	49	49	40	49	49	34	49	46	31	49	39	28	49	34	25	49	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	50	57*	52	37	57*	39	31	57*	33	27	56*	28	24	47	25	21	39	22	28
			Exposed	57*	57*	57*	57*	57*	56*	57*	57*	46	57*	54*	38	57*	45	34	57*	38	31	57*	34	28	57*	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	58*	50	57*	56*	39	55*	44	32	43	36	28	35	31	25	31	28	22
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	52*	59*	59*	44	59*	55*	38	59*	47	34	44	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	50	52	52	43	52	52	37	52	52	34	52	42	28	52	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	52	52	43	52	52	36	52	50	32	52	44	29	52	38	26	52	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	52	52	52	52	52	52	52	52	50	52	52	42	52	52	35	52	51	32	52	43	30	52	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	52	52	35	52	49	32	52	40	28	52	35	26	50	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	42	57	50	36	57	37	30	56	31	26	54	27	22	43	24	20	36	21	26	32	28	23
			Exposed	57	57	49	57	57	47	34	57	39	31	57	34	28	57	31	26	57	28	23	44	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	16	23	16	15
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	57*	60*	60*	49	58*	53	37	52	41	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	61*	61*	61*	61*	61*	54	61*	61*	45	61*	55	38	61*	47	34	51	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	32	46	42	28	46	35	25			
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	32	46	40	28	46	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	46	32	46	40	28	46	33	25	45	30	22
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	34	46	41	28	46	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	42	51*	46	34	51*	37	30	51*	32	27			
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45	51*	47*	34	51*	36	29	51*	31	25	51*	27	22	43	24	20	36	21	26
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	45*	54*	52*	36	53*	43	32			
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	46*	55*	51*	35	50*	40	31	39	34	27	33	30	24	29	26	21
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	34	46	44	29	46	36	25	46	34	22	36	26	29	33	24	26
			Exposed	46	46	46	46	46	46	46	46	40	46	46	35	46	46	32	46	43	29	46	38	26	46	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	45	30	46	35	26	46	30	22	36	26	19	32	23	26	28	21	23
			Exposed	46	46	46	46	46	40	46	46	34	46	46	31	46	39	28	46	34	25	46	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	37	51*	39	31	51*	33	27	51*	28	24	47*	25	21	39	22	28
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	46	51*	51*	38	51*	45	34	51*	38	31	51*	34	28	51*	29	24	46	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	54*	54*	39	53*	44	32	43	36	28	35	31	25	31	28	22
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	55*	44	55*	54*	38	55*	47*	34	45*	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	43	48	48	37	48	48	34	48	42	28	48	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	48	48	43	48	48	36	48	48	32	48	44	29	48	38	26	48	34	24	46	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	42	48	48	35	48	48	32	48	43	30	48	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	48	48	35	48	48	32	48	40	28	48	35	26	48	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50	56*	56*	42	56*	50	36	56*	37	30	56*	31	26	54*	27	22	43	24	20	36	21	26	32	28	23
			Exposed	56*	56*	49	56*	56*	40	56*	47	34	56*	39	31	56*	34	28	56*	31	26	56*	28	23	44	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	16	15
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	49*	56*	53*	37	52*	41	31	40	34	27	33	30	24	29	26	21	26	23	18
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	45	58*	55*	38	58*	47	34	51*	41	31	43	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	32	43	42	28	43	35	25			
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	32	43	40	28	43	34	24	43	29	21	36	26	28	32	23	25
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	32	43	40	28	43	33	25	43	30	22
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	34	43	41	28	43	33	24	42	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	46*	34	48*	37	30	48*	32	27			
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	48*	34	48*	36	29	48*	31	25	48*	27	22	43*	24	20	36	21	26
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	45*	49*	49*	36	49*	43*	32						
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	45*	49*	41*	31	40*	34	27	33	30	24	29	26	21			
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	34	43	43	29	43	36	25	43	31	22	39	27	29	33	24	26
			Exposed	43	43	43	43	43	43	43	43	40	43	43	35	43	43	32	43	43	29	43	38	26	43	31	22	38	27	29	32	23	25	28	20	22	25	27	19	22	24	17
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	36	43	43	30	43	35	26	43	30	22	36	26	19	32	23	26	28	21	23
			Exposed	43	43	43	43	43	43	43	43	34	43	43	31	43	39	28	43	34	25	43	31	23	37	27	20	31	23	25	27	20	22	24	26	19	21	23	17	28	20	15
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	37	48*	39	31	48*	33	27	48*	28	24	47*	25	21	39	22	28
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	38	48*	45*	34	48*	38	31	48*	34	28	48*	29	24	46*	25	20	37	21	27	32	28	23	28	25	21	25	22	18
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	39	49*	44*	32	44*	36	28	35	31	25	31	28	22
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	38	49*	47*	34	44*	36	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	37	45	45	34	45	42	28	45	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	45	45	43	45	45	36	45	45	32	45	44	29	45	38	26	45	34	24	45	31	22	36	26	28	31	22	24	27	29	21	23	26	18	20	23	16	28	20	14
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	42	45	45	35	45	45	32	45	45	30	45	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	19
			Exposed	45	45	35	45	45	32	45	40	28	45	35	26	45	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	18	20	22	16	26	19	14	23	17	13
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	36	50*	37	30	50*	31	26	50*	27	22	43	24	20	36	21	26
			Exposed	50*	50*	49*	50*	50*	40	50*	47*	34	50*	39	31	50*	34	28	50*	31	26	50*	28	23	44	24	20	35	21	26	30	27	22	26	24	18	23	21	17	21	16	15
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	49*	53*	53*	37	52*	41	31	40	34	27	33	30	24	29	26	21
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	45*	54*	54*	38	54*	47*	34	51*	41	31	44*	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	18

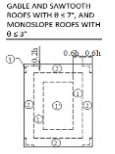
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

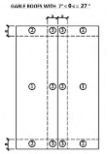
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

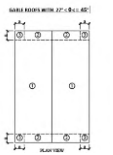
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

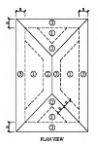












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

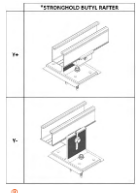
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	32	40	40	28	40	35	25
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	32	40	40	28	40	34	24	40	29	21	36	26	28	32	23	25
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	32	41	40	28	41	33	25	41	30	22
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	34	41	41	28	41	33	24	41	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	34	45*	37	30	45*	32	27
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	34	45*	36	29	45*	31	25	45*	27	22	43*	24	20	36	21	26
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	36*	44*	43*	32
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	36*	44*	40*	31	39*	34	27	33	30	24	29	26	21
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	29	40	36	25	40	31	22	39	27	29	33	24	26
			Exposed	40	40	40	40	40	40	40	40	40	40	40	35	40	40	32	40	40	29	40	38	26	40	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	36	41	41	30	41	35	26	41	30	22	36	26	19	32	23	26	28	21	23
			Exposed	41	41	41	41	41	40	41	41	34	41	41	31	41	39	28	41	34	25	41	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	~~28~~	~~20~~	~~15~~
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	39*	31	45*	33	27	45*	28	24	45*	25	21	39*	22	28
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38*	45*	45*	34	45*	38*	31	45*	34	28	45*	29	24	45*	25	20	37	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	39*	44*	44*	32	43*	36*	28	35	31	25	31	28	22
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*	44*	44*	34	44*	37*	29	34	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	34	43	42	28	43	34	24	43	30	21	36	26	28	31	23	24	28	20	22
			Exposed	43	43	43	43	43	36	43	43	29	43	38	26	43	34	24	43	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	42	43	43	35	43	43	32	43	43	30	43	34	25	43	29	21	34	25	28	30	22	25	26	29	22	23	26	~~19~~
			Exposed	43	43	35	43	43	32	43	40	28	43	35	26	43	31	23	42	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	36	48*	37	30	48*	31	26	48*	27	22	43*	24	20	36	21	26	32	28	23
			Exposed	48*	48*	48*	48*	48*	40	48*	47*	34	48*	39	31	48*	34	28	48*	31	26	48*	28	23	44*	24	20	35	21	26	30	27	22	26	24	~~19~~	23	21	~~17~~	21	~~18~~	~~15~~
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	37	48*	42*	31	40*	34	27	33	30	24	29	26	21	26	23	28
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	48*	39*	48*	47*	34	48*	41*	31	43*	35	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	~~18~~
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	32	38	38	28	38	35	25
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	28	38	34	24	38	29	21	36	26	28	32	23	25
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38	41*	41*	32	41*	39	28	41*	33	25	41*	30	22
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38	41*	41*	34	41*	41*	28	41*	33	24	41*	28	21	34	25	28	30	22	25	27	19	22
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	37*	30	41*	32	27
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	36*	29	41*	31	25	41*	27	22	41*	24	20	36*	21	26
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	32
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	31	39*	34*	27	33*	30	24	29	26	21
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	34	38	38	29	38	36	25	38	31	22	38	27	29	33	24	26
			Exposed	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	38	29	38	38	26	38	31	22	38	27	29	32	23	25	28	20	22	25	27	~~19~~	22	24	~~17~~
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	39	41*	41*	34	41*	41*	31	41*	39	28	41*	34	25	41*	31	23	37	27	20	31	23	25	27	20	22	24	26	~~19~~	21	23	~~17~~	28	~~20~~	~~15~~
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	39*	31	41*	33	27	41*	28	24	41*	25	21	39*	22	28
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38*	41*	41*	34*	41*	38*	31	41*	34*	28	41*	29	24	41*	25	20	37*	21	27	32	28	23	28	25	21	25	22	~~18~~
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	33*	40*	36*	28	35*	31	25	31	28	22
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	40*	34*	40*	36*	29	34*	31	24	30	27	21	26	23	28	23	21	25	20	28	22
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	34	40	40	28	40	34	24	40	30	21	36	26	28	31	23	24	28	20	22
			Exposed	40	40	40	40	40	36	40	40	32	40	40	29	40	38	26	40	34	24	40	31	22	36	26	28	31	22	24	27	29	21	23	26	~~18~~	20	23	~~16~~	28	~~20~~	~~14~~
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	41	32	41	41	30	41	34	25	41	29	21	34	25	28	30	22	25	26	29	22	23	26	~~19~~
			Exposed	41	41	35	41	41	32	41	40	28	41	35	26	41	31	23	41	29	21	36	26	29	30	22	25	26	29	21	22	25	~~18~~	20	22	~~16~~	26	~~19~~	~~14~~	23	~~17~~	~~13~~
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	36	45*	37	30	45*	31	26	45*	27	22	43*	24	20	36	21	26	32	28	23
			Exposed	45*	45*	45*	45*	45*	40*	45*	45*	34	45*	39*	31	45*	34	28	45*	31	26	45*	28	23	44*	24	20	35	21	26	30	27	22	26	24	~~19~~	23	21	~~17~~	21	~~18~~	~~15~~
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37*	44*	41*	31	40*	34	27	33	30	24	29	26	21	26	23	28
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	38*	44*	44*	34	44*	41*	31	43*	36*	28	34	30	24	29	26	20	25	22	27	22	30	23	29	26	21	26	23	~~18~~			

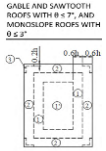
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

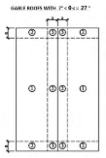
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

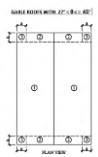
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

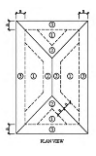












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

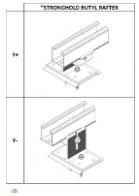
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	92	101	101	88	101	97	84	101	90	78	97	84	73	91	79	68	86	75	63	81	71	55	77	67	49
			Exposed	101	101	91	101	100	87	101	95	82	101	91	79	101	87	75	97	84	72	93	80	70	86	75	63	80	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	94	81	102	86	74	94	80	69	87	74	63	81	70	55	76	66	49	72	58	43
			Exposed	102	102	88	102	97	83	102	92	79	102	87	75	98	83	72	93	79	69	89	76	66	82	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	71	92	73	66	87	68	59	82	63	52
			Exposed	102	102	98	102	102	92	102	96	87	102	91	83	102	87	79	102	83	75	100	79	72	92	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	63
			Exposed	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	101	101	94	101	101	89	101	98	85	101	93	81	101	89	77	99	86	74	95	82	71	88	77	66	82	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	62	82	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	34
		7-20	Interior	102	102	91	102	100	86	102	94	81	102	89	77	101	85	74	96	81	71	91	78	68	84	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	101	85	74	95	80	70	89	76	66	85	73	61	81	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	102	102	101	102	102	95	102	99	90	102	94	85	102	89	81	102	85	77	102	81	74	95	75	68	88	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	102	89	81	102	84	76	101	80	73	96	76	69	92	72	66	88	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	103	103	103	103	103	102	103	103	97	103	101	92	103	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	103	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	101	100	86	101	94	82	101	90	78	100	86	74	95	82	71	91	79	68	87	76	66	81	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	95	82	71	90	78	68	86	75	63	82	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	102	96	83	102	91	78	102	86	74	96	82	71	91	78	68	87	75	64	83	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	91	78	68	86	74	62	82	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	102	101	91	102	95	86	102	90	82	102	85	78	102	81	74	98	78	71	94	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	102	81	74	97	77	70	92	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	103	103	98	103	103	93	103	103	84	97	89	80	92	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36			
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	90	78	95	84	73	91	79	68	86	75	63	81	71	55	77	67	49
			Exposed	95	95	91	95	95	87	95	95	82	95	91	79	95	87	75	95	84	72	93	80	70	86	75	63	80	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	94	81	95	86	74	94	80	69	87	74	63	81	70	55	76	66	49	72	58	43
			Exposed	95	95	88	95	95	83	95	92	79	95	87	75	95	83	72	93	79	69	89	76	66	82	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	71	92	73	66	87	68	59	82	63	52
			Exposed	99	99	98	99	99	92	99	96	87	99	91	83	99	87	79	99	83	75	99	79	72	92	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	63
			Exposed	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	95	95	94	95	95	89	95	95	85	95	93	81	95	89	77	95	86	74	95	82	71	88	77	66	82	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	62	82	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	34
		7-20	Interior	95	95	91	95	95	86	95	94	81	95	89	77	95	85	74	95	81	71	91	78	68	84	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	95	85	74	95	80	70	89	76	66	85	73	61	81	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	99	99	99	99	99	95	99	99	90	99	94	85	99	89	81	99	85	77	99	81	74	95	75	68	88	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	99	89	81	99	84	76	99	80	73	96	76	69	92	72	66	88	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	102	102	102	102	102	97	102	101	92	102	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44			
			Exposed	102	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	95	82	71	90	78	68	86	75	63	82	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	95	95	83	95	91	78	95	86	74	95	82	71	91	78	68	87	75	64	83	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	91	78	68	86	74	62	82	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	100	100	91	100	95	86	100	90	82	100	85	78	100	81	74	98	78	71	94	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	100	81	74	97	77	70	92	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	86	75	63	81	71	55	77	67	49
			Exposed	86	86	86	86	86	86	86	86	82	86	86	79	86	86	75	86	84	72	86	80	70	86	75	63	80	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	81	86	86	74	86	80	69	86	74	63	81	70	55	76	66	49	72	58	43
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	82	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	71	92	73	66	87	68	59	82	63	52
			Exposed	92	92	92	92	92	92	92	92	87	92	91	83	92	87	79	92	83	75	92	79	72	92	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	91	82	92	85	77	86	80	72	80	75	68	76	71	63
			Exposed	95	95	95	95	95	95	95	95	94	95	95	89	95	94	85	95	90	82	94	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	77	86	86	74	86	82	71	86	77	66	82	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	62	82	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	34
		7-20	Interior	86	86	86	86	86	86	86	86	81	86	86	77	86	85	74	86	81	71	86	78	68	84	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	86	85	74	86	80	70	86	76	66	85	73	61	81	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	92	89	81	92	84	76	92	80	73	92	76	69	92	72	66	88	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	92	84	95	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	95	95	87	95	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	86	82	71	86	78	68	86	75	63	82	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	86	86	83	86	86	78	86	86	74	86	82	71	86	78	68	86	75	64	83	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	86	78	68	86	74	62	82	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	93	93	91	93	93	86	93	90	82	93	85	78	93	81	74	93	78	71	93	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	93	81	74	93	77	70	92	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	89	80	92	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36

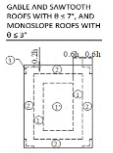
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

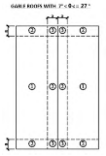
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

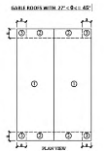
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

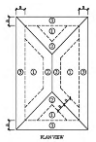












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

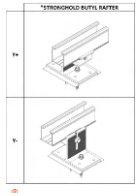
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	73	79	79	68	79	75	63	79	71	55	77	67	49
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	70	79	75	63	79	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	80	80	69	80	74	63	80	70	55	76	66	49	72	58	43
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	83	76	86	77	71	86	73	66	86	68	59	82	63	52
			Exposed	86	86	86	86	86	86	86	86	86	86	86	83	86	86	79	86	83	75	86	79	72	86	73	67	86	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	85	77	86	80	72	80	75	68	76	71	63
			Exposed	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	82	90	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	71	79	79	71	79	77	66	79	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	62	79	71	57	79	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	71	80	78	68	80	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	80	80	74	80	80	70	80	76	66	80	73	61	80	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	54	36	40	50
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	85	77	86	81	74	86	75	68	86	70	61	82	64	53	78	56	46	73	49	41	70	44	36
			Exposed	86	86	81	86	84	76	86	80	73	86	76	69	86	72	66	86	69	60	84	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	89	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	90	90	87	90	90	83	90	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	79	79	71	79	78	68	79	75	63	79	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	52	36	40	48
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	64	80	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	80	78	68	80	74	62	80	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	88	88	88	88	88	86	88	88	82	88	85	78	88	81	74	88	78	71	88	74	68	87	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	88	81	74	88	77	70	88	73	67	88	69	61	84	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	54	41	36	90
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	89	80	91	85	77	88	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	91	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	75	63	78	71	55	77	67	49
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	70	78	75	63	78	70	54	75	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	63	78	70	55	76	66	49	72	58	43
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	56	76	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	71	82	73	66	82	68	59	81	63	52
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	67	82	68	58	80	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	85	77	83	80	72	80	75	68	76	71	63
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	71	78	77	66	78	72	57	77	68	50	73	61	43	69	54	38	66	48	51
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	62	78	71	57	78	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	68	78	72	59	78	67	51	73	59	44	68	52	38	62	46	51	55	41	45
			Exposed	78	78	74	78	78	70	78	76	66	78	73	61	78	70	55	77	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	54	36	40	50
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	77	82	81	74	82	75	68	82	70	61	81	64	53	78	56	46	73	49	41	70	44	36
			Exposed	82	82	81	82	82	76	82	80	73	82	76	69	82	72	66	82	69	60	82	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	84	82	74	82	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	86	86	86	86	86	83	86	86	79	86	83	75	85	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	79	79	71	79	78	68	79	75	63	79	72	57	79	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	52	36	40	48
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	64	80	72	58	77	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38
			Exposed	80	78	68	80	74	62	80	70	56	78	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	83	83	83	83	83	83	83	83	82	83	83	78	83	81	74	83	78	71	83	74	68	83	69	60	81	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	83	81	74	83	77	70	83	73	67	83	69	61	83	66	55	81	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	54	41	36	90
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	82	74	81	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	87	87	80	87	84	76	86	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	63	74	71	55	74	67	49
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	70	74	74	63	74	70	54	74	66	47	71	58	41	68	51	36	62	45	49
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	63	74	70	55	74	66	49	72	58	43
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	56	74	65	48	71	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	71	78	73	66	78	68	59	77	63	52
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	72	78	78	73	67	78	68	58	78	61	50	76	53	44	72	47	39	68	42	34
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	77	80	80	72	79	75	68	76	71	63			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	82	80	72	80	75	68	74	70	60	70	66	53	66	59	47	58	52	41
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	57	74	68	50	73	61	43	69	54	38	66	48	51
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	62	74	71	57	74	69	52	73	62	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	68	74	74	74	68	74	74	63	74	71	55	74	67	49	72	58	43
			Exposed	74	74	74	74	74	74	74	74	66	74	73	61	74	70	55	74	67	50	74	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	54	36	40	50
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	68	78	70	61	77	64	53	76	56	46	73	49	41	70	44	36
			Exposed	78	78	78	78	78	76	78	78	73	78	76	69	78	72	66	78	69	60	78	66	55	78	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	81	81	74	79	77	69	76	72	64	72	68	56	67	62	49	61	55	44
			Exposed	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	81	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	76	66	76	71	56	76	67	48	71	58	41	68	51	36	62	45	48	55	40	43
			Exposed	76	76	71	76	76	68	76	75	63	76	72	57	76	69	52	76	66	47	73	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	52	36	40	48
		7-20	Interior	76	76	76	76	76	76	76	76	76	71	76	76	68	76	75	64	76	72	58	76	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38		
			Exposed	76	76	68	76	74	62	76	70	56	76	67	50	74	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	80	80	80	80	80	80	80	80	80	78	80	80	74	80	78	71	80	74	68	80	69	60	79	62	51	76	53	44	72	47	39	68	41	34	62	37	46
			Exposed	80	80	74	80	77	70	80	73	67	80	69	61	80	66	55	80	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	54	41	36	90
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	83	83	77	82	82	74	80	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36
			Exposed	84	84	80	84	84	76	84	80	72	82	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36

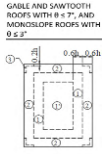
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

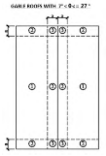
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

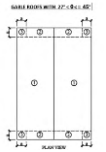
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

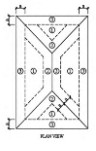












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

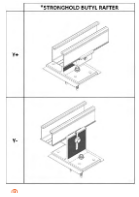
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	69	69	54	69	66	47	69	58	41	68	51	36	62	45	49
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	69	69	69	69	69	55	69	66	49	69	58	43
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	56	69	65	48	69	56	42	66	49	36	59	43	48	52	38	43
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	71	75	73	66	75	68	59	74	63	52					
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	67	75	68	58	75	61	50	75	53	44	72	47	39	68	42	34			
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	72	76	75	68	78	68	57	77	57	41					
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	75	68	74	70	60	70	66	53	66	59	47	58	52	41			
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	61	69	68	50	69	61	43	69	54	38	66	48	51			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	67	69	69	62	69	69	57	69	69	52	69	69	44	69	53	38	63	46	49	55	40	43	49	53	38	43	48	54			
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	59	69	67	51	69	59	44	68	52	38	62	46	51	55	41	45			
			Exposed	69	69	69	69	69	69	69	69	66	69	69	61	69	69	55	69	67	50	69	62	46	68	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30			
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	68	75	70	61	74	64	53	73	56	46	72	49	41	70	44	36			
			Exposed	75	75	75	75	75	75	75	73	75	75	69	75	72	66	75	69	60	75	66	55	75	57	47	73	49	40	68	42	35	62	37	46	55	49	41	49	44	36				
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	64	72	68	56	67	62	49	61	55	44				
			Exposed	79	79	79	79	79	79	79	79	79	75	79	79	72	79	76	69	78	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43					
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	56	72	67	48	71	58	41	68	51	36	62	45	48	55	40	43				
			Exposed	72	72	71	72	72	68	72	72	63	72	72	57	72	69	52	72	66	47	72	61	43	68	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28			
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	64	72	72	58	72	66	49	71	57	42	67	49	37	59	43	48	52	38	43	46	51	38			
			Exposed	72	72	68	72	72	62	72	70	56	72	67	50	72	62	46	71	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25			
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	69	60	76	62	51	75	53	44	72	47	39	68	41	34	62	37	46					
			Exposed	77	77	74	77	77	70	77	73	67	77	69	61	77	66	55	77	61	50	77	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30			
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	74	78	76	68	75	71	61	70	66	53	65	59	47	58	52	41	51	46	36				
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36			
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	55	64	64	49			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	54	64	64	47	64	58	41	64	51	36	62	45	49			
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	55	64	64	49	64	58	43			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	64	48	64	56	42	64	49	36	59	43	48	52	38	43			
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	59	71	63	52			
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	58	71	61	50	71	53	44	71	47	39	68	42	34			
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	72	73	73	68	72	71	63				
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	75	68	74	70	60	70	66	53	66	59	47	58	52	41			
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	54	64	48	51			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	57	64	64	52	64	64	44	64	53	38	63	46	49	55	40	43	49	53	38	43	48	54			
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	51	64	48	45			
			Exposed	64	64	64	64	64	64	64	64	64	64	64	61	64	64	55	64	64	50	64	62	46	64	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30			
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	70	56	71	64	53	70	56	46	69	49	41	68	44	36			
			Exposed	71	71	71	71	71	71	71	71	71	71	71	69	71	71	66	71	69	60	71	66	55	71	57	47	71	49	40	68	42	35	62	37	46	55	49	41	49	44	36			
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	73	72	64	71	68	56	67	62	49	61	55	44			
			Exposed	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43					
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	56	67	67	48	67	58	41	67	51	36	62	45	48	55	40	43				
			Exposed	67	67	67	67	67	67	67	67	63	67	67	57	67	67	52	67	66	47	67	61	43	67	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28			
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	49	68	57	42	67	49	37	59	43	48	52	38	43	46	51	38			
			Exposed	68	68	68	68	68	62	68	68	56	68	67	50	68	62	46	68	56	42	68	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25			
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	69	60	73	62	51	72	53	44	71	47	39	68	41	34	62	37	46			
			Exposed	74	74	74	74	74	70	74	73	67	74	69	61	74	66	55	74	61	50	74	56	46	72	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30			
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	77	77	77	74	75	75	68	74	71	61	70	66	53	65	59	47	58	52	41	51	46	36			
			Exposed	78	78	78	78	78	78	78	78	72	78	76	69	78	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36			
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	49			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54	60	60	45	49		
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	49	60	58	43
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	48	52	38	43
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	59	67	63	52			
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	42	34			
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	77*	77*	77*	72	71	71	68	70	70	63			
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	79*	79*	72	79*	74	68	73	70	60	70	66	53	66	59	47	58	52	41			
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	50	60	60	43	60	54	38	60	48	51			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	44	60	53	38	60	46	49	55	40	43	49	53	38	43	48	34			
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	51	60	59	44	60	52	38	60	46	51	55	41	45			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	50	60	60	46	60	52	39	60	45	50	53	39	44	46	51	38	41	45	34	36	40	30			
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	64	53	67	56	46	66	49	41	64	44	36			
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	60	67	66	55	67	57	47	67	49	40	67	42	35	62	37	46	55	49	41	49	44	36			
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	77*	73	72	72	69	70	70	64	68	68	56	66	62	49	61	55	44			
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	74	79*	79*	72	79*	74	69	78*	73	66	72	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43						
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	56	63	63	48	63	58	41	63	51	36	62	45	48	55	40	43				
			Exposed	63	63	63	63	63	63	63	63	57	63	63	52	63	63	47	63	61	43	63	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28						
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	49	63	57	42	63	49	37	59	43	48	52	38	43	46	51	38			
			Exposed	63	63	63	63	63	62	63	63	56	63	63	50	63	62	46	63	56	42	63	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25			
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	69	60	70	62	51	69	53	44	68	47	39	66	41	34	62	37	46				
			Exposed	70	70	70	70	70	70	70	70	67	70	69	61	70	66	55	70	61	50	70	56	46	70	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30			
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	74	73	73	68	72	71	61	70	66	53	65	59	47	58	52	41	51	46	36					
			Exposed	76	76	76	76	76	76	76	76	72	76	76	69	76	73	66	74	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36			

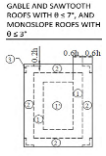
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

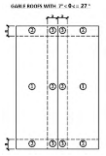
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

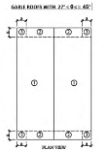
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

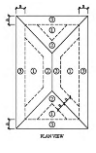












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

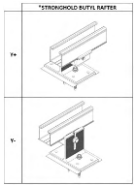
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	47	57	57	41	57	51	36	57	45	49
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49	57	57	43
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	48	57	56	42	57	49	36	57	43	48	52	38	43
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	52			
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	61	50	63	53	44	63	47	39	63	42	34
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	73*	73*	72*	71*	71*	68	70*	70*	63
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	68	71*	70*	60	70*	66	53	66	59	47	58	52	41
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	43	57	54	38	57	48	51
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	44	57	53	38	57	46	49	55	40	43	49	53	38	43	48	54
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	51	57	57	44	57	52	38	57	46	51	55	41	45
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	50	57	57	46	57	52	39	57	45	50	53	39	44	46	51	38	41	45	54	36	40	50	
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	53	63	56	46	63	49	41	62	44	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	55	63	57	47	63	49	40	63	42	35	62	37	46	55	49	41	49	44	36
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	64	71*	65	56	64	62	49	61	55	44
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	70*	68	56	67	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	48	60	58	41	60	51	36	60	45	48	55	40	43
			Exposed	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	47	60	60	43	60	52	37	60	44	47	53	38	41	46	51	36	40	45	52	36	40	40	28	
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	57	42	60	49	37	59	43	48	52	38	43	46	51	38
			Exposed	60	60	60	60	60	60	60	60	56	60	60	50	60	60	46	60	56	42	60	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	60	67	62	51	66	53	44	65	47	39	64	41	34	62	37	46
			Exposed	67	67	67	67	67	67	67	67	61	67	66	55	67	61	50	67	56	46	67	47	39	67	41	51	60	35	44	52	46	38	46	41	34	41	36	30			
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	78*	78*	77*	77*	77*	72	78*	71	68	69	69	61	67	66	53	65	59	47	58	52	41	51	46	36	
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	72	76*	76*	69	76*	73	66	73	70	60	71	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	47	54	54	41	54	51	36	54	45	49
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	43
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	54	42	54	54	49	54	54	43	48	52	38
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	52
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	50	60	53	44	60	47	39	60	42	34
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	64*	64*	63*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60	67*	66*	53	66*	59	47	58	52	41
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	54	54	43	54	54	38	54	48	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	44	54	53	38	54	46	49	54	40	43	49	53	38	43	48	54
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	44	54	54	38	54	46	51	54	41	45
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	54	54	46	54	52	39	54	45	50	53	39	44	46	51	38	41	45	54	36	40	50
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	60	60	46	60	49	41	60	44	36
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	57	47	60	49	40	60	42	35	60	37	46	55	49	41	49	44	36
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	65*	65*	64*	66*	66*	56	64*	62	49	61	55	44
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	56	66*	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	48	57	57	41	57	51	36	57	45	48	55	40	43
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	47	57	57	43	57	52	37	57	44	47	53	38	41	46	51	36	40	45	52	36	40	28	
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	49	57	57	42	57	49	37	57	43	48	52	38	43	46	51	38
			Exposed	57	57	57	57	57	57	57	57	56	57	57	50	57	57	46	57	56	42	57	52	38	57	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	62	51	63	53	44	62	47	39	61	41	34	60	37	46
			Exposed	63	63	63	63	63	63	63	63	63	63	63	61	63	63	55	63	61	50	63	56	46	63	47	39	63	41	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	61	70*	65	53	63	59	47	58	52	41	51	46	36
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	71*	70*	60	70*	68	55	66	59	47	57	51	40	49	44	35	43	39	46	38	51	41	51	46	36	

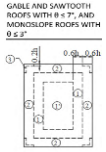
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

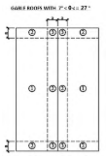
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

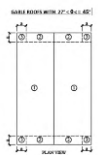
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

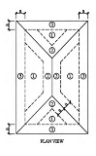












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

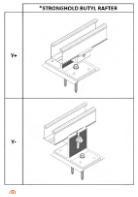
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	83	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	63	76	67	60	72	64	57	69	61	53	66	58	44
			Exposed	86	86	77	86	83	73	86	80	70	86	76	67	83	74	65	80	71	63	78	69	61	73	64	57	68	61	51	65	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	84	74	86	81	72	86	78	69	83	73	65	78	68	61	73	64	57	69	61	54	66	58	44	63	56	39
			Exposed	86	84	74	86	80	71	86	77	68	84	73	65	81	71	63	77	68	60	75	66	58	70	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	87	87	87	87	87	87	87	87	84	87	87	81	87	84	78	87	81	75	87	75	70	86	71	66	81	67	62	77	63	59	73	60	56	70	57	50			
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	65	83	68	63	77	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	86	79	87	81	74	81	76	70	77	72	66	72	66	62	77	63	59	73	60	56			
			Exposed	87	87	85	87	87	82	87	85	78	87	82	75	84	78	72	81	76	70	78	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	64	79	70	62	74	66	58	70	62	55	66	59	45	63	56	39	60	50	34	57	43	30
			Exposed	85	75	66	81	72	63	78	69	61	75	66	59	72	64	56	70	62	54	67	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	67	82	72	64	79	69	62	76	67	60	71	63	56	67	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	82	72	64	78	69	61	75	66	59	72	63	56	69	61	54	67	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	87	87	82	87	85	79	87	81	75	87	78	72	87	75	69	87	72	67	85	69	64	79	65	60	74	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	87	75	69	87	81	66	83	68	63	80	65	61	77	63	58	74	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	77	86	80	74	83	77	71	80	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	86	80	74	82	77	70	78	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	86	83	73	86	79	70	86	76	67	82	73	64	79	70	62	76	68	60	74	65	58	69	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	79	70	62	76	67	59	73	64	57	70	62	55	67	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	86	80	70	86	76	67	83	73	64	80	70	62	76	67	60	73	65	57	71	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	76	67	59	73	64	57	70	61	55	67	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	87	83	76	87	79	73	87	75	70	87	72	67	85	69	64	81	67	62	79	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	84	69	64	81	66	61	77	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	87	87	81	87	84	77	87	81	74	83	78	71	80	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	80	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
10	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	63	76	67	60	72	64	57	69	61	53	66	58	44			
			Exposed	81	80	77	81	81	73	81	80	70	81	76	67	81	74	65	80	71	63	78	69	61	73	64	57	68	61	51	65	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	72	81	78	69	81	73	65	78	68	61	73	64	57	69	61	54	66	58	44	63	56	39
			Exposed	81	81	74	81	80	71	81	77	68	81	73	65	81	71	63	77	68	60	75	66	58	70	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	84	81	75	84	75	70	84	71	66	81	67	62	77	63	59	73	60	56	70	57	50
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	65	83	68	63	77	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	74	81	76	70	77	72	66	72	68	63	69	65	60	66	62	57
			Exposed	86	86	85	86	86	82	86	85	78	86	82	75	84	78	72	81	76	70	78	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	81	72	64	79	70	62	74	66	58	70	62	55	66	59	45	63	56	39	60	50	34	57	43	30
			Exposed	81	75	66	81	72	63	78	69	61	75	66	59	72	64	56	70	62	54	67	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	67	81	72	64	79	69	62	76	67	60	71	63	56	67	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	81	72	64	78	69	61	75	66	59	72	63	56	69	61	54	67	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	84	84	82	84	84	79	84	81	75	84	78	72	84	75	69	84	72	67	84	69	64	79	65	60	74	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	84	75	69	84	84	71	83	68	63	80	65	61	77	63	58	74	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	86	86	86	86	86	86	86	86	83	77	86	80	74	83	77	71	80	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39		
			Exposed	86	80	74	82	77	70	78	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	81	81	73	81	79	70	81	76	67	81	73	64	79	70	62	76	68	60	74	65	58	69	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	79	70	62	76	67	59	73	64	57	70	62	55	67	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	81	80	70	81	76	67	81	73	64	80	70	62	76	67	60	73	65	57	71	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	76	67	59	73	64	57	70	61	55	67	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	84	69	64	81	66	61	77	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
			Exposed	87	87	81	87	84	77	87	81	74	83	78	71	80	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
		27-45	Interior	80	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	63	73	67	60	72	64	57	69	61	53	66	58	44
20	B	0-7	Interior	73	73	73	73	73	73	73	73	70	73	73	67	73	73	65	73	71	63	73	69	61	73	64	57	68	61	51	65	58	42	62	55	37	59	47	32	56	40	43
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	65	73	68	61	73	64	57	69	61	54	66	58	44	63	56	39
		7-20	Interior	73	73	73	73	73	73	73	73	68	73	73	65	73	71	63	73	68	60	73	66	58	70	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
			Exposed	73	73	73	73	73	73	73	73	68	73	73	65	73	71	63	73	68	60	73	66	58	70	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	75	70	78	71	66	78	67	62	77	63	59	73	60	56	70	57	50
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	65	78	68	63	77	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	77	72	66	72	68	63	69	65	60	66	62	57
			Exposed	81	81	81	81	81	81	81	81	78	81	81	75	81	78	72	81	76	70	78	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	70	62	73	66	58	70	62	55	66	59	45	63	56	39	60	50	34	57	43	30
			Exposed	73	73	66	73	72	63	73	69	61	73	66	59	72	64	56	70	62	54	67	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	67	73	72	64	73	69	62	73	67	60	71	63	56	67	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	73	72	64	73	69	61	73	66	59	72	63	56	69	61	54	67	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	67	78	69	64	78	65	60	74	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	78	75	69	78	71	66	78	68	63	78	65	61	77	63	58	74	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	81	80	74	81	77	70	78	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	73	73	73	73	73	73	73	73	67	73	73	64	73	70	62	73	68	60	73	65	58	69	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	73	70	62	73	67	59	73	64	57	70	62	55	67	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	73	73	70	73	73	67	73	73	64	73	70	62	73	67	60	73	65	57	71	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	73	67	59	73	64	57	70	61	55	67	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	79	79	76	79	79	73	79	75	70	79	72	67	79	69	64	79	67	62	79	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	79	69	64	79	66	61	77	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	78	71	80	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	80	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32

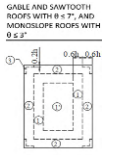
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

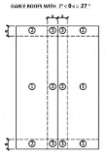
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

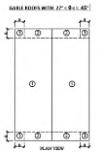
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

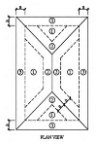












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

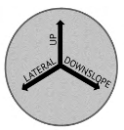
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

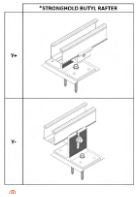
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	64	57	65	61	53	65	58	44			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	61	65	64	57	65	61	51	65	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	61	66	64	57	66	61	54	66	58	44	63	56	39			
			Exposed	66	66	66	66	66	66	66	66	66	66	66	65	66	66	63	66	66	60	66	66	58	66	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	71	66	73	67	62	73	63	59	73	60	56	70	57	50
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	65	73	68	63	73	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	70	76	72	66	72	68	63	69	65	60	66	62	57
			Exposed	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	70	76	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	62	65	65	58	65	62	55	65	59	45	63	56	39	60	50	34	57	43	30
			Exposed	65	65	65	65	65	63	65	65	61	65	65	59	65	64	56	65	62	54	65	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	66	60	66	63	56	66	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	66	66	64	66	66	61	66	66	59	66	63	56	66	61	54	66	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	65	60	73	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	73	73	69	73	71	66	73	68	63	73	65	61	73	63	58	73	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	76	76	74	76	76	70	76	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	60	66	65	57	66	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	66	66	59	66	64	57	66	61	55	66	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	74	69	64	74	66	61	74	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	78	71	78	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	78	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	57	63	61	53	63	58	44
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	51	63	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	54	63	58	44	63	56	39
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	59	63	63	59
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	67	62	68	63	59	68	60	56	68	57	50
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	63	59	68	60	55	68	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	72	72	66	70	68	63	73	73	70	66	62	57
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	70	73	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	58	63	62	55	63	59	45	63	56	39	60	50	34	57	43	30
			Exposed	63	63	63	63	63	63	63	63	61	63	63	59	63	63	56	63	62	54	63	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	54	63	58	44	63	56	39
			Exposed	63	63	63	63	63	61	63	63	59	63	63	56	63	61	54	63	59	46	63	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	60	68	61	57	68	58	51	66	55	41	63	45	36	61	39	32
			Exposed	68	68	68	68	68	66	68	68	63	68	65	61	68	63	58	68	61	56	68	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	71	70	64	69	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	73	73	73	73	73	70	73	73	67	73	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	62	65	65	60	65	65	58	65	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	60	66	65	57	66	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	43	49	34
			Exposed	66	66	59	66	64	57	66	61	55	66	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	74	69	64	74	66	61	74	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	78	71	78	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	78	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	53	58	58	44			
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	42	58	55	37	58	47	32	56	40	43
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	57	59	59	54	59	58	44			
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	55	59	58	43	59	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	60	56	63	57	50
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	60	56	63	57	31
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	72*	66	73*	66	63	65	65	60	63	62	57
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	73*	73*	69	73*	73*	69	73*	73*	67	73*	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	45	58	56	39	58	50	34	57	43	30
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	48	58	58	48	58	56	39	58	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	47	58	56	39	57	48	34	56	41	30	54	36	40
			Exposed	59	59	59	59	59	59	59	59	59	59	59	56	59	59	54	59	59	46	59	57	41	59	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	58	51	62	55	41	61	45	36	59	39	32
			Exposed	63	63	63	63	63	63	63	63	63	63	63	61	63	63	58	63	61	56	63	59	54	63	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	73*	69	73*	72*	67	64	65	65	61	63	62	57	61	59
			Exposed	73*	73*	73*	73*	73*	69	73*	73*	67	73*	69	65	72*	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	54	61	58	42	61	55	37	59	47	32	56	40	43	51	36	38
			Exposed	61	61	61	61	61	59	61	61	57	61	61	55	61	60	48	61	58	42	61	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	61	55	61	58	45	60	55	38	59	45	33	56	38	43	49	34	38	41	30	34			
			Exposed	61	61	59	61	61	57	61	61	55	61	59	46	61	57	41	61	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	64	60	66	60	56	65	57	47	63	51	39	62	42	34	59	37	30	56	33	41
			Exposed	66	66	64	66	66	61	66	63	59	66	61	57	66	59	54	66	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	70	70	66	69	69	64	67	65	60	64	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	71	71	68	71	71	66	71	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32

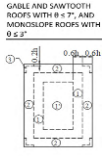
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

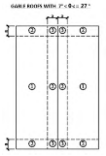
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

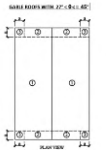
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

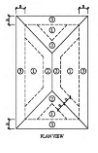












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

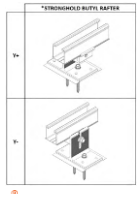
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	44
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	42	54	54	37	54	47	32	54	40	43
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	39
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	43	54	54	37	54	44	32	54	38	43	50	34	38
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	55	60	56	46	60	51	39	60	42	34
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	55	60	56	46	60	51	39	60	42	34	59	37	31
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	64*	63*	63*	63*	64*	64*	60	62*	62*	57
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	59	64*	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	45	54	54	39	54	50	34	54	43	30
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	54	39	54	49	33	54	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	39	54	54	48	34	53	41	30	52	36	40
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	54	41	54	49	34	54	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	59	58	51	58	55	41	57	45	36	56	39	32
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	54	60	55	42	60	44	36	59	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	63*	62*	62*	61	62*	62*	57	63*	58	54	57	56	44	55	53	39
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	60	65*	63*	58	63*	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	42	56	55	37	56	47	32	56	40	43	51	36	38
			Exposed	56	56	56	56	56	56	56	56	56	55	56	56	48	56	56	42	56	56	38	56	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	45	56	55	38	55	45	33	54	38	43	49	34	38	41	30	34
			Exposed	57	57	57	57	57	55	57	57	46	57	57	41	57	55	37	57	57	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	60	56	61	57	47	60	51	39	59	42	34	57	37	30	56	33	41
			Exposed	62	62	62	62	62	59	62	61	57	62	59	54	62	57	46	62	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	69*	69*	69*	66	68*	68*	64	68*	63	60	61	61	56	59	58	50	57	55	41	55	48	36	48	41	32
			Exposed	70*	70*	69*	70*	70*	66	70*	69*	63	70*	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	50	37	50	47	32	50	40	43
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	39
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	37	50	44	32	50	38	43	50	34	38
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	58*	57*	50
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	55	59*	56*	46	59*	51	39	59*	42	34	58*	37	31
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	61*	61*	60*	60*	60*	57*	57*	57*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59*	61*	61*	56*	60*	58*	50	58*	55*	41	56*	48	37
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45	50	50	39	50	50	34	50	43	30
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	39	50	49	33	50	41	44	50	36	38	43	31	34	38	42	30
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	39	50	50	48	34	50	41	30	49	36	40
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	50	41	50	49	34	50	40	30	50	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	51	58*	55	41	56*	45	36	53	39	32
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	56*	59*	59*	54	59*	55	42	59*	44	36	59*	37	31	57*	33	41	53	44	36	44	39	32
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	60*	60*	59*	59*	59*	57*	57*	57*	56*	56*	54*	54*	44	55*	53	39
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	62*	58*	60*	59*	55*	59*	56*	43	56*	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	37	52	47	32	52	40	43	51	36	38
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	42	52	52	38	52	47	33	52	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	45	53	53	38	52	45	33	52	38	43	49	34	38
			Exposed	53	53	53	53	53	53	53	53	53	46	53	53	41	53	53	37	53	48	34	53	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	59	47	57	51	39	56	42	34	55	37	30
			Exposed	59	59	59	59	59	59	59	59	59	57	59	59	54	59	57	46	59	55	41	59	42	35	58	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	62*	60*	60*	60*	61*	61*	56	59*	57	50	55	55	41	54	48	36	48	41	32
			Exposed	64*	64*	64*	64*	64*	64*	63*	64*	64*	60*	64*	63*	58	63*	61*	56	62*	59*	54	59*	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	37	47	47	32	47	40	43
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	39
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	32	47	43	47	34	38
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	55*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	57*	57*	50*	56*	55*	41	55*	49*	37
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	39	47	47	34	47	43	30
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	38	43	31	34	38	42	30
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	34
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	41	47	47	34	47	40	30	47	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	42	55*	55*	41	54*	45	36	53*	39	32
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	42	55*	44	36	55*	37	31	55*	33	41	53*	44	36	44	39	32
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	56*	55*	55*	55*	54*	54*	54*	54*	52*	44	51*	51*	39
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	55*	56*	56*	43	55*	49*	37	48*	41	33	40	36	43	36	32	39
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	32	49	40	43	49	36	38
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	48	49	49	42	49	49	38	49	47	33	49	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45	50	50	38	50	45	33	49	38	43	48	34	38
			Exposed	50	50	50	50	50	50	50	50	46	50	50	41	50	50	37	50	48	34	50	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	51	39	56*	58*	47	57*	51	39	55*	42	34	52	37	30
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	57*	58*	58*	54	58*	57*	46	58*	55*	41	58*	42	35	58*	36	30	56*	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	59*	59*	59*	58*	58*	58*	56*	56*	56*	55*	55*	50	53*	53*	41	54*	48	36	48	41	32
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	61*	58*	60*	60*	56*	59*	59*	54*	58*	56*	42	55*	47	36	44	39	31	38	34	41	34	30	36	30	41	32

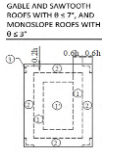
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

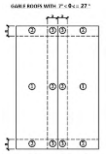
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

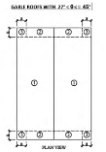
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

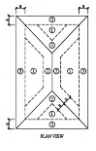












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

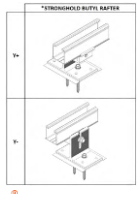
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	37	44	44	32	44	40	43
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	45	45	39
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	37	45	44	32	45	38	43	45	34	38
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	39	49*	42	34	49*	37	31
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	52*	41	52*	48*	37
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	34	44	43	30
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	33	44	41	44	44	36	38	43	31	34	38	42	30
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	39	45	45	45	34	45	41	30	45	36	40		
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	34	45	40	30	45	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41	49*	45*	36	49*	39	32		
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	42	49*	44	36	49*	37	31	49*	33	41	49*	44	36	44	39	32
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	50*	44*	49*	49*	39		
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	41	33	40	36	43	36	32	39
	D	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	37	47	47	32	47	40	43	47	36	38
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	38	47	47	33	47	39	42	47	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	47	45	33	47	38	43	46	34	38	41	30	34
			Exposed	47	47	47	47	47	47	47	47	47	46	47	47	41	47	47	37	47	47	34	47	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47	54*	51*	39	53*	42	34	52*	37	30	51*	33	41
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	46	55*	55*	41	55*	42	35	55*	36	30	54*	31	39	48	41	34	41	36	30	36	32	27		
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	56*	54*	54*	54*	53*	53*	50*	52*	52*	41	50*	48*	36	48*	41	32
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	57*	57*	54*	56*	55*	42	54*	47*	36	44	39	31	38	34	41	34	30	36	30	41	32
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	40	43
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	32	42	38	43	42	34	38
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	46*	47*	47*	39	47*	42*	34	47*	37	31
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	37
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	34	42	42	30
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	33	42	41	44	42	36	38	42	31	34	38	42	30
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	34	42	41	30	42	36	40
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	34	42	40	30	42	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	45*	36	47*	39	32		
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	44*	36	47*	37	31	47*	33	41	47*	44	36	44*	39	32
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	39*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	47*	37	47*	41*	33	40*	36	43	36	32	39
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	37	44	44	32	44	40	43	44	36	38
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	38	44	44	33	44	39	42	44	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33	45	38	43	45	34	38	41	30	34
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	37	45	45	34	45	39	43	45	33	37	39	43	32	34	38	28	30	34	25	41	30	22		
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	39	49*	42	34	48*	37	30	48*	33	41
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	41	49*	42	35	49*	36	30	49*	31	39	48*	41	34	41	36	30	36	32	27		
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	50*	50*	41	49*	48*	36	47*	41	32
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42	52*	47*	36	45*	39	31	38	34	41	34	30	36	30	41	32

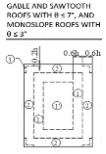
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

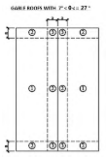
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

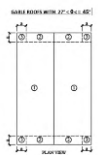
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

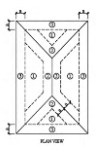












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

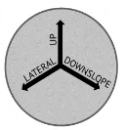
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

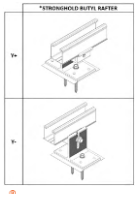
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	102	89	102	98	85	102	91	79	98	85	73	92	80	69	86	75	65	82	71	62	78	68	60
			Exposed	102	102	92	102	101	88	102	96	83	102	92	80	102	88	76	98	84	73	94	81	70	87	76	65	81	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	95	82	102	87	75	95	81	70	88	75	65	82	71	63	77	67	60	73	64	58
			Exposed	102	102	89	102	98	84	102	93	80	102	88	76	99	84	73	94	80	70	90	77	67	83	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	83	103	84	77	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	103	103	99	103	103	93	103	97	88	103	92	84	103	87	80	103	83	76	101	80	73	93	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	65
			Exposed	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	102	102	95	102	102	90	102	99	85	102	94	82	102	90	78	100	86	75	96	83	72	89	77	67	83	72	63	78	68	60	74	65	58	72	63	56	69	60	51
			Exposed	102	90	78	99	86	74	94	82	71	90	78	68	86	75	65	83	72	63	79	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	102	102	92	102	101	87	102	95	82	102	90	78	102	86	75	97	82	71	93	79	68	85	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	102	86	74	96	81	71	90	77	67	86	74	64	82	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	103	103	102	103	103	96	103	100	91	103	95	86	103	90	82	103	86	78	103	82	75	96	76	69	89	70	65	83	66	62	78	63	59	74	60	57	70	58	54
			Exposed	103	90	82	103	85	77	102	80	73	97	76	70	92	73	67	88	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	103	103	103	103	103	103	103	103	98	103	102	93	103	98	88	103	93	85	98	90	81	90	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	103	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	102	101	87	102	95	83	102	91	79	100	87	75	96	83	72	92	80	69	88	77	67	82	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	96	83	72	91	79	68	87	75	65	83	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	102	97	84	102	92	79	102	87	75	97	83	72	92	79	68	88	75	66	84	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	92	79	68	87	74	65	82	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	103	102	92	103	96	87	103	91	83	103	86	78	103	82	75	99	78	72	95	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	103	82	75	98	77	71	93	74	67	89	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	91	79	95	85	73	92	80	69	86	75	65	82	71	62	78	68	60
			Exposed	95	95	92	95	95	88	95	95	83	95	92	80	95	88	76	95	84	73	94	81	70	87	76	65	81	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	95	82	96	87	75	95	81	70	88	75	65	82	71	63	77	67	60	73	64	58
			Exposed	96	96	89	96	96	84	96	93	80	96	88	76	96	84	73	94	80	70	90	77	67	83	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	83	100	84	77	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	100	100	99	100	100	93	100	97	88	100	92	84	100	87	80	100	83	76	100	80	73	93	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	65
			Exposed	102	102	102	102	102	100	102	102	95	102	100	90	102	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	82	95	90	78	95	86	75	95	83	72	89	77	67	83	72	63	78	68	60	74	65	58	72	63	56	69	60	51
			Exposed	95	90	78	95	86	74	94	82	71	90	78	68	86	75	65	83	72	63	79	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	96	96	92	96	96	87	96	95	82	96	90	78	96	86	75	96	82	71	93	79	68	85	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	96	86	74	96	81	71	90	77	67	86	74	64	82	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	100	100	100	100	100	96	100	100	91	100	95	86	100	90	82	100	86	78	100	82	75	96	76	69	89	70	65	83	66	62	78	63	59	74	60	57	70	58	54
			Exposed	100	90	82	100	85	77	100	80	73	97	76	70	92	73	67	88	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	98	88	102	93	85	98	90	81	90	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	102	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	95	95	87	95	95	83	95	91	79	95	87	75	95	83	72	92	80	69	88	77	67	82	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	95	83	72	91	79	68	87	75	65	83	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	96	96	84	96	92	79	96	87	75	96	83	72	92	79	68	88	75	66	84	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	92	79	68	87	74	65	82	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	101	101	92	101	96	87	101	91	83	101	86	78	101	82	75	99	78	72	95	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	101	82	75	98	77	71	93	74	67	89	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	79	86	85	73	86	80	69	86	75	65	82	71	62	78	68	60
			Exposed	86	86	86	86	86	86	86	86	83	86	86	80	86	86	76	86	84	73	86	81	70	86	76	65	81	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	87	75	87	81	70	87	75	65	82	71	63	77	67	60	73	64	58
			Exposed	87	87	87	87	87	87	87	87	80	87	87	76	87	84	73	87	80	70	87	77	67	83	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	83	92	84	77	92	78	71	92	73	67	87	69	64	83	65	61
			Exposed	92	92	92	92	92	92	92	92	88	92	92	84	92	87	80	92	83	76	92	80	73	92	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	92	83	93	86	77	87	80	73	81	76	69	77	72	65
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	86	75	86	83	72	86	77	67	83	72	63	78	68	60	74	65	58	70	62	55	66	60	51
			Exposed	86	86	78	86	86	74	86	82	71	86	78	68	86	75	65	83	72	63	79	69	61	74	65	58	69	62	56	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	87	87	87	87	87	87	87	87	82	87	87	78	87	86	75	87	82	71	87	79	68	85	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	87	86	74	87	81	71	87	77	67	86	74	64	82	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	92	92	92	92	92	92	92	92	91	92	92	86	92	90	82	92	86	78	92	82	75	92	76	69	89	70	65	83	66	62	78	63	59	74	60	57	70	58	54
			Exposed	92	90	82	92	85	77	92	80	73	92	76	70	92	73	67	88	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	93	96	96	88	96	93	85	96	90	81	90	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	96	96	88	96	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	80	69	86	77	67	82	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	86	83	72	86	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	87	87	84	87	87	79	87	87	75	87	83	72	87	79	68	87	75	66	84	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	87	79	68	87	74	65	82	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	94	94	92	94	94	87	94	91	83	94	86	78	94	82	75	94	78	72	94	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	94	82	75	94	77	71	93	74	67	89	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	97	97	97	97	97	97	97	97	89	97	94	85	97	90	81	93	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	97	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54

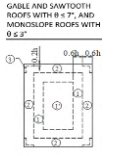
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

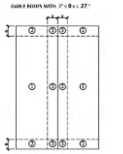
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

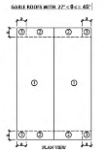
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

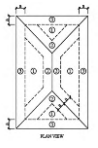












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #145
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

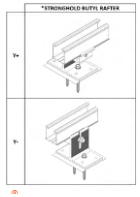
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	75	80	80	71	78	68	60						
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	76	65	80	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	71	63	77	67	60	73	64	58
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	77	67	80	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	84	77	87	78	71	87	73	67	87	69	64	83	65	61
			Exposed	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	83	76	87	80	73	87	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	86	77	87	80	73	81	76	69	77	72	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	77	67	80	72	63	78	68	60	74	65	58	70	62	55	66	60	51
			Exposed	80	80	78	80	80	74	80	80	71	80	78	68	80	75	65	80	72	63	79	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	71	80	79	68	80	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	80	80	74	80	80	71	80	77	67	80	74	64	80	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	87	87	82	87	86	78	87	82	75	87	76	69	87	70	65	83	66	62	78	63	59	74	60	57	70	58	54	
			Exposed	87	87	82	87	85	77	87	80	73	87	76	70	87	73	67	87	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	85	90	90	81	89	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	90	90	88	90	90	84	90	88	79	90	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	80	69	80	77	67	80	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	72	80	79	68	80	75	66	80	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	80	79	68	80	74	65	80	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	88	88	88	88	88	87	88	88	83	88	86	78	88	82	75	88	78	72	88	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	88	82	75	88	77	71	88	74	67	88	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	90	81	92	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	92	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	65	78	71	62	78	68	60
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	76	65	78	71	62	76	67	59	72	63	57	68	61	54	65	59	60	61	55	57
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	71	63	77	67	60	73	64	58
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	64	82	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	76	82	80	73	82	74	67	82	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	63	78	68	60	74	65	58	70	62	55	66	60	51
			Exposed	78	78	78	78	78	74	78	78	71	78	78	68	78	75	65	78	72	63	78	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	71	63	77	67	60	73	64	58
			Exposed	78	78	78	78	78	74	78	78	71	78	78	68	78	78	65	78	78	68	78	78	68	78	73	64	78	68	61	73	64	58	69	61	55	65	59	51	63	56	59
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	64	82	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	77	84	80	73	81	76	69	77	72	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	D	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	65	78	71	62	78	68	60
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		7-20	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	64	82	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	76	82	80	73	82	74	67	82	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	77	84	80	73	81	76	69	77	72	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
		27-45	Interior	88	88	88	88	88	88	88	88	88	88	88	85	88	88	81	87	86	78	86	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	88	88	81	88	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	65	74	71	62	74	68	60
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	62	74	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	71	63	75	67	60	73	64	58
			Exposed	75	75	75	75	75	75	75	75	75	75	75	73	75	75	70	75	75	67	75	75	67	75	71	63	75	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	71	78	73	67	78	69	64	78	65	61
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	67	78	76	62	78	63	59	73	64	60	74	62	58	69	57	51
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	77	81	80	73	79	76	69
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	79	83	81	73	81	75	71	64	70	67	61	66	64	59	63	61	57		
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	67	74	72	63	74	68	60	74	65	58	70	62	55	66	60	51
			Exposed	74	74	74	74	74	74	74	74	71	74	74	68	74	74	65	74	72	63	74	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	68	75	73	64	75	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	75	75	74	75	75	71	75	75	67	75	74	64	75	70	62	75	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	76	69	78	70	65	78	66	62	77	63	59	74	60	57	70	58	54
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	64	78	67	62	78	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	81	75	80	77	70	77	73	66	72	68	63	68	65	60
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	67	76	72	63	76	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	76	76	76	76	76	76	76	76	75	76	76	72	76	76	68	76	75	66	76	72	64	76	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	76	76	68	76	74	65	76	71	63	76	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	72	80	75	69	80	69	64	80	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	80	80	75	80	77	71	80	74	67	80	70	65	80	67	62	80	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	83	82	74	81	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	84	84	81	84	84	77	84	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54

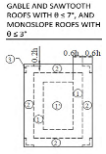
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

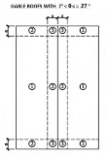
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

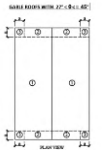
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

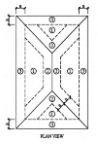












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

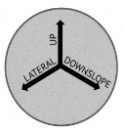
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

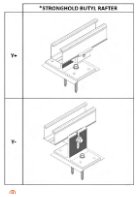
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	68	60
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	67	59	69	63	57	68	61	54	65	59	60
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	70	63	70	67	60	70	64	58
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	63	70	66	60	70	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	71	75	73	67	75	69	64	75	65	61
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	74	67	75	69	63	75	64	60	75	62	58	72	59	56	69	57	51
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	65
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	60	69	65	58	69	62	55	66	60	51
			Exposed	69	69	69	69	69	69	69	69	69	68	69	69	65	69	69	63	69	69	61	69	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	64	70	68	61	70	64	58	69	61	55	65	59	51	63	56	59
			Exposed	70	70	70	70	70	70	70	70	67	70	70	64	70	70	62	70	67	60	70	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	65	75	66	62	74	63	59	73	60	57	70	58	54
			Exposed	75	75	75	75	75	75	75	75	73	75	75	70	75	73	67	75	70	64	75	67	62	75	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	73	66	72	68	63	68	65	60	65	62	58
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	72	80	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	72	63	73	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	73	73	72	73	73	68	73	73	65	73	72	63	73	69	61	73	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	73	73	73	73	73	73	73	73	73	72	73	73	68	73	73	66	73	72	64	73	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55	57	55
			Exposed	73	73	68	73	73	65	73	71	63	73	68	61	73	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	72	77	75	69	77	69	64	76	65	61	75	62	58	72	59	55	68	57	51	65	54	59
			Exposed	77	77	75	77	77	71	77	74	67	77	70	65	77	67	62	77	65	61	77	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	80	80	74	78	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	81	81	81	81	81	81	81	81	73	81	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	57	65	61	54	65	59	60
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	60	65	64	58
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	60	65	64	58	60	61	55	57
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	64	72	65	61
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	63	72	64	60	72	62	58	72	59	56	69	57	51
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	75	75	73	74	74	69	73	72	65
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	62	55	65	60	51
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	61	65	65	58	65	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	61	65	64	58	65	61	55	64	59	51	63	56	59
			Exposed	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	59	65	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	70	64	72	66	62	71	63	59	70	60	57	68	58	54
			Exposed	72	72	72	72	72	72	72	72	70	72	72	67	72	70	64	72	67	62	72	63	59	72	60	56	69	57	52	65	55	59	62	49	56	60	58	54			
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	74	74	70	73	73	66	76	68	63	68	65	60	65	62	58
			Exposed	77	77	77	77	77	77	77	77	77	76	77	77	72	77	77	70	77	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58		
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	63	68	64	57	68	61	54	65	58	60	62	56	57			
			Exposed	68	68	68	68	68	68	68	68	65	68	68	63	68	68	61	68	67	59	68	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	64	68	67	60	68	63	57	67	60	55	64	58	60	61	55	57	59	51	55	57	55
			Exposed	68	68	68	68	68	65	68	68	63	68	68	61	68	65	59	68	63	57	68	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	69	64	74	65	61	73	62	58	72	59	55	68	57	51	65	54	59
			Exposed	74	74	74	74	74	71	74	74	67	74	70	65	74	67	62	74	65	61	74	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	78	77	77	74	76	76	69	74	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	79	79	79	79	79	79	73	79	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54		
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	54	61	59	60
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54	61	61	60	61	55	57
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	62	68	68	63	68	59	56
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	81*	81*	74	73	73	73	72	72	69	70	70	65
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73	79*	75	68	74	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	55	61	60	51
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	56	59	59	51
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	56	60	56	59
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	66	62	67	63	59	66	60	57	65	58	54
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	67	62	68	63	59	68	60	56	68	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	83*	83*	73	72	72	70	71	71	66	69	68	63	67	65	60	65	62	58
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	75	79*	79*	72	79*	75	70	79*	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	64	57	64	64	61	54	64	58	60	62	56	57		
			Exposed	64	64	64	64	64	64	64	64	64	63	64	64	61	64	64	59	64	64	58	64	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42		
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	58
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	63	57
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	71	69	64	71	65	61	70	62	58	68	59	55	67	57	51	65	54	59
			Exposed	71	71	71	71	71	71	67	71	70	65	71	67	62	71	65	61	71	63	59	71	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45		
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	76	76	76	76	76	75	75	74	74	74	69	72	71	65	70	67	62	66	64	59	63	61	57	61	59	54			
			Exposed	77	77	77	77	77	77	73	77	77	70	76	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54		

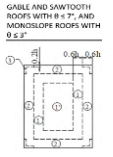
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

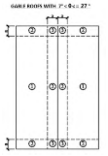
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

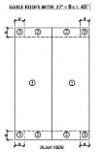
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

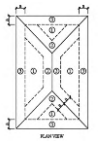












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

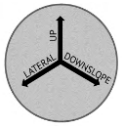
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

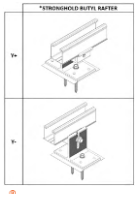
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60			
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	60	58	55	57
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	62	58	64	59	56	64	57	51
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	72*	71*	71*	65
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68	72*	71*	64	71*	67	61	66	64	59	63	61	57
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	51
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49	57	56	58	57	53	55	57	59	51
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	51	58	56	59
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	50	58	56	58	58	51	55	57	58	50	54	56	45
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	59	64	64	62	64	63	59	64	60	57	63	58	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	63	59	64	60	56	64	57	52	64	55	59	62	49	56	60	58	54
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	74*	74*	74*	72*	72*	69	71*	71*	66	72*	66	63	65	65	60	63	62	58			
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	73*	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58		
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	60	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	58	60	60	55	60	58	59	60	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	60	55	61	58	60	60	55	57	59	51	55
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	55	61	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	66	59	55	64	57	51	63	54	59
			Exposed	67	67	67	67	67	67	67	67	67	65	67	67	62	67	65	61	67	63	59	67	59	56	67	56	50	64	52	58	61	59	55	59	57	51	56	50	59	54	45
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	78*	78*	78*	73	72	72	69	70	70	65	68	67	62	66	64	59	63	61	57	61	59	54
			Exposed	79*	79*	79*	79*	79*	74	79*	79*	73	79*	74	70	79*	74	67	74	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	55	55	60	55	55	57
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	59	56	61	57	51
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	66*	66*	65*	65*	65*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	67*	61	66*	64*	59	64*	61	57
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	58	54	53	55	54	59	51
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	59
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	58	55	51	55	55	58	50	54	56	45
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	60	57	60	58	54
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	60	56	61	57	52	61	55	59	61	49	56	60	58	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	65*	65*	65*	67*	67*	63	65*	65*	60	64*	61	58
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	63	67*	65*	60	64*	61	57	61	59	55	59	56	60	56	54	58		
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	59	57	55	57	57	50	54	56	58	48	54	56	42
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	57	51	55
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	62	58	63	59	55	62	57	51	61	54	59
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	61	64	63	59	64	59	56	64	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	69	73*	71*	65	71*	66	62	64	64	59	62	61	57	61	59	54
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	72*	71*	64	72*	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54

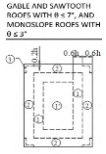
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

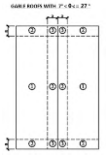
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

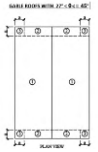
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

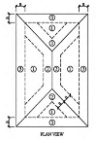












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

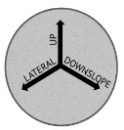
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

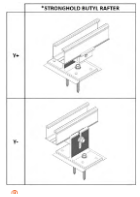
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	80	71	81	77	68	81	72	64	77	68	60	73	64	57	69	61	54	66	58	44	63	56	37
			Exposed	81	81	73	81	79	70	81	76	67	81	73	65	80	70	62	77	68	60	74	66	58	69	61	54	65	58	43	62	55	35	59	47	31	56	39	41	52	34	36
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	80	70	62	75	66	58	71	62	55	67	59	46	63	56	37	61	50	32
			Exposed	81	81	71	81	77	68	81	74	65	81	71	63	78	68	60	75	65	58	72	63	56	67	59	46	63	56	36	59	46	31	56	37	41	51	32	36	41	28	32
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	73	67	82	68	63	78	64	60	74	61	56	70	58	51	67	55	41
			Exposed	82	82	78	82	80	74	82	77	71	82	73	68	82	70	65	82	68	63	79	65	61	74	61	57	70	57	50	66	54	39	62	42	33	59	35	29	57	31	39
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	77	82	78	72	79	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	82	82	82	82	82	79	82	82	75	82	78	72	81	75	69	78	73	67	75	70	65	70	66	60	66	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	81	81	75	81	81	78	69	81	75	66	81	72	64	79	69	61	76	67	59	71	63	56	67	59	71	63	56	67	59	47	63	56	38	60	50	32	57	42	43	55	36	38
			Exposed	81	72	63	78	69	61	75	66	58	72	63	56	69	61	53	67	59	46	64	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	64	80	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	79	69	61	76	66	59	72	63	56	69	61	53	67	59	45	64	56	38	62	55	34	58	41	29	54	33	37	42	29	32	34	~~38~~	~~28~~	30	~~34~~	~~25~~	~~41~~	~~30~~	~~22~~
		20-27	Interior	82	82	80	82	82	76	82	78	72	82	75	69	82	72	67	82	69	64	81	67	62	76	62	58	71	59	55	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	82	72	67	82	69	64	80	66	61	77	63	58	74	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	72	66	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	82	77	71	79	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	65	57	71	62	55	66	59	45	62	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	76	67	59	72	64	57	69	61	54	67	59	46	64	57	40	62	55	35	60	50	32	56	39	~~41~~	50	33	~~35~~	40	~~43~~	~~31~~	34	~~38~~	~~27~~	30	~~33~~	~~24~~	~~40~~	~~29~~	~~21~~
		7-20	Interior	81	77	68	81	73	65	80	70	62	77	67	60	74	64	57	71	62	55	68	60	50	64	56	37	60	48	31	57	37	~~41~~	51	32	~~36~~	41	~~43~~	32	34	~~38~~	~~28~~
			Exposed	73	64	57	70	62	55	67	59	46	64	57	39	62	54	34	60	47	31	58	40	~~43~~	52	32	~~36~~	40	~~42~~	~~31~~	33	~~36~~	~~27~~	29	~~32~~	~~24~~	~~38~~	~~28~~	~~21~~	~~34~~	~~25~~	~~19~~
		20-27	Interior	82	80	74	82	76	70	82	73	67	82	70	64	81	67	62	78	64	60	75	62	58	70	58	52	66	55	40	63	43	33	59	35	29	57	31	~~38~~	53	~~41~~	~~34~~
			Exposed	81	67	62	77	64	59	74	61	57	71	59	54	68	56	46	66	54	39	64	46	34	60	45	29	56	30	~~38~~	50	~~39~~	~~33~~	40	~~34~~	~~29~~	34	~~30~~	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	82	82	78	82	81	75	82	78	71	80	74	69	77	72	66	74	69	64	71	67	61	67	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	~~41~~
			Exposed	77	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	~~39~~	32	~~43~~	~~34~~	42	~~38~~	~~30~~	38	~~34~~	~~27~~
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	44	63	56	37
			Exposed	76	76	73	76	76	70	76	76	67	76	73	65	76	70	62	76	68	60	74	66	58	69	61	54	65	58	43	62	55	35	59	47	31	56	39	~~41~~	52	34	~~36~~
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	46	63	56	37	61	50	32
			Exposed	76	76	71	76	76	68	76	74	65	76	71	63	76	68	60	75	65	58	72	63	56	67	59	46	63	56	36	59	46	31	56	37	~~41~~	51	32	~~36~~	41	28	~~32~~
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	73	67	79	68	63	78	64	60	74	61	56	70	58	51	67	55	41
			Exposed	79	79	78	79	79	74	79	77	71	79	73	68	79	70	65	79	68	63	79	65	61	74	61	57	70	57	50	~~66~~	54	39	62	42	33	59	35	29	57	31	~~39~~
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	65	70	66	60	~~66~~	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	64	76	69	61	76	67	59	71	63	56	67	59	47	63	56	38	60	50	32	57	42	43	55	36	38
			Exposed	76	72	63	76	69	61	75	66	58	72	63	56	69	61	53	67	59	46	64	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	76	69	61	76	66	59	72	63	56	69	61	53	67	59	45	64	56	38	62	55	34	58	41	29	54	33	37	42	29	32	34	~~38~~	~~28~~	30	~~34~~	~~25~~	~~41~~	~~30~~	~~22~~
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	59	55	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	79	72	67	79	69	64	79	66	61	77	63	58	74	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	81	77	71	79	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	65	57	71	62	55	66	59	45	62	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	76	67	59	72	64	57	69	61	54	67	59	46	64	57	40	62	55	35	60	50	32	56	39	~~41~~	50	33	~~35~~	40	~~43~~	~~31~~	34	~~38~~	~~27~~	30	~~33~~	~~24~~	~~40~~	~~29~~	~~21~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	73	64	57	70	62	55	67	59	46	64	57	39	62	54	34	60	47	31	58	40	~~43~~	52	32	~~36~~	40	~~42~~	~~31~~	33	~~36~~	~~27~~	29	~~32~~	~~24~~	~~38~~	~~28~~	~~21~~	~~34~~	~~25~~	~~19~~
		20-27	Interior	80	80	74	80	76	70	80	73	67	80	70	64	80	67	62	78	64	60	75	62	58	70	58	52	66	55	40	63	43	33	59	35	29	57	31	~~38~~	53	~~41~~	~~34~~
			Exposed	80	67	62	77	64	59	74	61	57	71	59	54	68	56	46	66	54	39	64	46	34	60	45	29	56	30	~~38~~	50	~~39~~	~~33~~	40	~~34~~	~~29~~	34	~~30~~	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	82	82	78	82	81	75	82	78	71	80	74	69	77	72	66	74	69	64	71	67	61	67	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	~~41~~
			Exposed	77	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	~~39~~	32	~~43~~	~~34~~	42	~~38~~	~~30~~	38	~~34~~	~~27~~
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	60	67	64	57	67	61	54	66	58	44	63	56	37
			Exposed	67	67	67	67	67	67	67	67	67	67	67	65	67	67	62	67	67	60	67	67	58	67	67	61	64	65	58	67	62	55	67	59	47	31	56	39	~~41~~	52	34	~~36~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	58	67	62	55	67	59	46	63	56	37	61	50	32
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	60	67	65	58	67	67	63	67	59	46	63	56	36	59	46	31	56	37	~~41~~	51	32	~~36~~	41	28	~~32~~
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	67	73	68	63	73	64	60	73	61	56	70	58	51	67	55	41
			Exposed	73	73	73	73	73	73	73	73	71	73	73	68	73	70	65	73	68	63	73	65	61	73	61	57	70	57	50	66	54	39	62	42	33	59	35	29	57	31	~~39~~
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	76	76	76	76	76	76	76	76	75	76	76	72	76	75	69	76	73	67	75	70	65	70	66	60	66	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	66	67	67	64	67	67	61	67	67	59	67	63	56	67	59	47	63	56	38	60	50	32	57	42	43	55	36	38
			Exposed	67	67	63	67	67	61	67	66	58	67	63	56	67	61	53	67	59	46	64	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	62	67	67	59	67	64	57	67	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	67	67	61	67	66	59	67	63	56	67	61	53	67	59	45	64	56	38	62	55	34	58	41	29	54	33	37	42	29	32	34	~~38~~	~~28~~	30	~~34~~	~~25~~	~~41~~	~~30~~	~~22~~
		20-27	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	67	62	73	62	58	71	59	55	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	73	72	67	73	69	64	73	66	61	73	63	58	73	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	72	64	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	76	76	71	76	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	61	67	67	59	67	65	57	67	62	55	66	59	45	62	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	67	67	59	67	64	57	67	61	54	67	59	46	64	57	40	62	55	35	60	50	32	56	39	~~41~~	50	33	~~35~~	40	~~43~~	~~31~~	34	~~38~~	~~27~~	30	~~33~~	~~24~~	~~40~~	~~29~~	~~21~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	60	67	67	64	67	67	57	67	65	55	67	60	50	64	56	37	60	48	31	57	37	~~41~~	51	32	~~36~~	41	28	~~32~~
			Exposed	67	64	57	67	62	55	67	59	46	64	57	39	62	54	34	60	47	31	58	40	~~43~~	52	32	~~36~~	40	~~42~~	~~31~~	33	~~36~~	~~27~~	29	~~32~~	~~24~~	~~38~~	~~28~~	~~21~~	~~34~~	~~25~~	~~19~~
		20-27	Interior	74	74	74	74	74	70	74	73	67	74	70	64	74	67	62	74	64	60	74	62	58	70	58	52	66	55	40	63	43	33	59	35	29	57	31	~~38~~	53	~~41~~	~~34~~
			Exposed	74	67	62	74	64	59	74	61	57	71	59	54	68	56	46	66	54	39	64	46	34	60	45	29	56	30	~~38~~	50	~~39~~	~~33~~	40	~~34~~	~~29~~	34	~~30~~	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	77	77	77	77	77	77	77	77	71	77	74	69	77	72	66	74	71	67	61	67	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	~~41~~	49	~~34~~
			Exposed	77	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	~~39~~	32	~~43~~	~~34~~	42	~~38~~	~~30~~	38	~~34~~	~~27~~

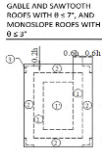
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

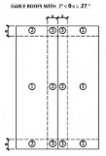
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

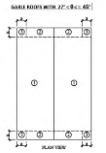
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

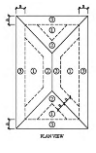












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

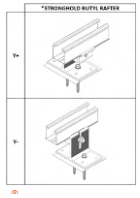
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																					
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	44	60	56	37
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	54	60	58	43	60	55	35	59	47	31	56	39	41	52	34	36
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	59	46	60	56	37	60	50	32		
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	46	60	56	36	59	46	31	56	37	41	51	32	36	41	28	32
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	56	67	53	67	55	41						
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	63	67	65	61	67	61	57	67	57	50	66	54	39	62	42	33	59	35	29	57	31	39			
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	63	70	65	60	66	56	59	63	59	55
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	65	70	66	60	66	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	59	47	60	56	38	60	56	50	32	57	42	43	55	36
			Exposed	60	60	60	60	60	60	60	60	58	60	60	56	60	60	53	60	59	46	60	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	28	32	35	25
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	50	60	57	39	60	51	33	58	41	29	55	34	38	46	30	34
			Exposed	60	60	60	60	60	59	60	60	56	60	60	53	60	59	45	60	56	38	60	55	34	58	41	29	54	33	37	42	29	32	34	38	28	30	34	25	41	39	22
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	58	67	59	55	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	67	67	67	67	67	64	67	66	61	67	63	58	67	61	56	67	58	54	67	56	46	64	48	35	60	46	30	57	31	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	71	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32	
			Exposed	72	72	71	72	72	68	72	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	59	45	60	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	60	60	59	60	60	57	60	60	54	60	59	46	60	57	40	60	55	35	60	50	32	56	39	41	50	33	35	40	43	31	34	38	27	30	33	24	40	29	21
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	60	50	60	56	37	60	48	31	57	37	41	51	32	36	41	43	32	34	38	28
			Exposed	60	60	57	60	60	55	60	59	46	60	57	39	60	54	34	60	47	31	58	40	43	52	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	64	69	67	62	69	64	60	69	62	58	69	58	52	66	55	40	63	43	33	59	35	29	57	31	38	53	41	34
			Exposed	69	67	62	69	64	59	69	61	57	69	59	54	68	56	46	66	54	39	64	46	34	60	45	32	56	30	38	50	39	33	40	34	29	34	30	25	30	27	22
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	69	73	72	66	73	69	64	71	67	61	67	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	41
			Exposed	73	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	27
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	44	58	56	37
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	43	58	55	35	58	47	31	56	39	41	52	34	36
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	46	58	56	37	58	50	32
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	46	58	56	36	58	46	31	56	37	41	51	32	36	41	28	32
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	61	56	62	58	51	62	55	41
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	62	61	57	62	57	50	62	54	39	62	42	33	59	35	29	57	31	39
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	65	65	60	63	62	57	61	59	55
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	66	60	66	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	50	32	57	42	43	55	36
			Exposed	58	58	58	58	58	58	58	58	56	58	58	53	58	58	45	58	56	38	58	55	34	58	41	29	54	33	37	42	29	32	34	38	28	30	34	25	41	30	22
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	51	58	57	39	58	51	33	57	41	29	55	34	38	46	30	34
			Exposed	58	58	58	58	58	58	58	58	56	58	58	53	58	58	45	58	56	38	58	55	34	58	41	29	54	33	37	42	29	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	59	55	62	55	42	61	47	34	60	37	30	58	33	41
			Exposed	62	62	62	62	62	62	62	62	61	62	62	58	62	61	56	62	58	54	62	56	46	62	48	35	60	36	30	57	31	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	62	64	63	58	62	60	55	60	57	46	57	53	37	55	44	32
			Exposed	67	67	67	67	67	67	67	67	65	67	67	62	67	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	59	45	60	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	60	60	59	60	60	57	60	60	54	60	59	46	60	57	40	60	55	35	60	50	32	56	39	41	50	33	35	40	43	31	34	38	27	30	33	24	40	29	21
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	60	50	60	56	37	60	48	31	57	37	41	51	32	36	41	43	32	34	38	28
			Exposed	60	60	57	60	60	55	60	59	46	60	57	39	60	54	34	60	47	31	58	40	43	52	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	58	64	58	52	64	55	40	62	43	33	59	35	29	57	31	38	53	41	34
			Exposed	64	64	62	64	64	59	64	61	57	64	59	54	64	56	46	64	54	39	64	46	34	60	35	29	56	30	38	50	39	33	40	34	29	34	30	25	30	27	22
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	67	67	61	65	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	41
			Exposed	69	69	66	69	68	63	69	66	60	67	63	58	65	61	56	62	60	52	60	57	45	56	49	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	27
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	44	53	53	37
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	43	53	53	35	53	47	31	53	39	41	52	34	36
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	54	37	53	50	32
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	37	41	28	32
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	51	58	55	41
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	39
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60	62*	62*	57	62*	58	55
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	62*	57	62*	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	47	53	53	38	53	50	32	53	42	43	53	36	38
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	40	53	53	40	53	51	33	53	41	42	53	34	37	43	30	32	36	40	28	32	35	25
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	39	54	51	33	53	41	29	52	34	38	46	30	34
			Exposed	54	54	54	54	54	54	54	54	54	54	54	53	54	54	45	54	54	38	54	54	34	54	41	29	54	33	37	42	29	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	55	42	57	47	34	56	37	30	55	33	41
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	54	58	56	46	58	48	35	58	36	30	57	31	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	62*	62*	58	62*	58	55	56	56	46	55	53	41	53	44	32
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	60	63*	63*	58	63*	61*	56	61*	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32			
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	45	56	55	36	56	47	31	56	39	41	51	33	36	43	30	32
			Exposed	56	56	56	56	56	56	56	56	54	56	56	46	56	56	40	56	55	35	56	50	32	56	39	41	50	33	35	40	43	31	34	38	27	30	33	24	40	29	21
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	50	56	56	37	55	48	31	54	37	41	51	32	36	41	28	32
			Exposed	56	56	56	56	56	55	56	56	46	56	56	39	56	54	34	56	47	31	56	40	43	52	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	58	52	60	55	40	58	43	33	57	35	29	56	31	38	53	41	34
			Exposed	60	60	60	60	60	59	60	60	57	60	59	54	60	56	46	60	54	39	60	46	34	60	35	29	56	30	38	50	39	33	40	34	29	34	30	25	30	27	22
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	64	66*	66*	61	66*	61	58	59	59	54	57	56	42	55	49	35	49	40	30	40	34	41
			Exposed	67*	67*	66*	67*	67*	63	67*	66*	60	67*	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	27

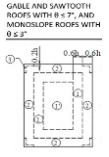
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

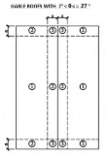
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

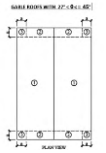
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

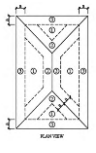












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

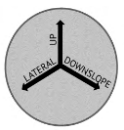
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

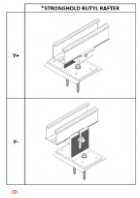
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	37
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	35	49	47	31	49	39	41	49	34	36
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	49	37	49	49	49	49	32
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	36	49	46	31	49	37	41	49	32	36	41	28	32
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	51	57*	55*	41						
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	50	57*	54*	39	57*	42	33	57*	35	29	57*	31	39
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	58*	58*	56*	56*	55*	55*	55*			
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	52*	58*	56*	42	56*	49	35	50	40	31	
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	38	49	49	32	49	42	43	49	49	36	49	36	38
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	40	49	49	33	49	41	42	49	34	37	43	30	32	36	40	28	32	35	25
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	39	49	49	33	49	41	29	49	34	38	46	30	34
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	45	49	49	38	49	49	34	49	41	29	49	33	37	42	29	32	34	38	28	30	34	25	41	39	22
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	55*	57*	55*	42	56*	47	34	55*	37	30	54*	33	41
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	56*	46	57*	48	35	57*	36	30	57*	31	39	54*	41	34	44	36	30	37	32	27
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	59*	58*	58*	58*	57*	57*	57*	55*	55*	55*	54*	54*	46	52*	52*	37	52*	44	32
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	56*	58*	57*	46	57*	52*	36	52*	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	36	52	47	31	52	39	41	51	33	36	43	30	32
			Exposed	52	52	52	52	52	52	52	52	52	52	52	46	52	52	40	52	52	35	52	50	32	52	39	41	50	33	35	40	43	31	34	38	27	30	33	24	40	29	21
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	37	52	48	31	51	37	41	50	32	36	41	43	32	34
			Exposed	52	52	52	52	52	52	52	52	46	52	52	39	52	52	34	52	47	31	52	40	43	52	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19
		20-27	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	56	55	40	55	43	33	54	35	29	53	31	38	52	41	34
			Exposed	57	57	57	57	57	57	57	57	57	54	57	56	46	57	54	39	57	46	34	57	43	50	39	33	40	34	29	56	30	38	50	39	33	40	34	29	34	30	25
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	58*	58*	58*	59*	59*	54	57*	55	42	53	49	35	49	40	30	40	34	41	
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	58*	61*	61*	56	61*	59*	52	60*	57*	45	56	49	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	27			
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	46	46	46	37
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	35	46	46	31	46	39	41	46	34	36			
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	46	46	46	32
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	36	46	46	31	46	37	41	46	32	36	41	28	32
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	41
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	39	51*	42	33	51*	35	29	51*	31	39
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	53*	53*	53*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	55*	42	54*	49*	35	50*	40	31
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	33	46	41	42	46	34	37	43	30	32	36	40	28	32	35	25
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	46	46	46	34
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	38	46	46	34	46	41	29	46	33	37	42	29	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46	51*	48*	35	51*	36	30	51*	31	39	51*	41	34	44	36	30
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	48*	35	51*	36	30	51*	31	39	51*	41	34	44	36	30	37	32	27
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	54*	53*	53*	53*	51*	51*	46
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47*	54*	52*	36	51*	41	31
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	36	48	47	31	48	39	41	48	33	36	43	30	32
			Exposed	48	48	48	48	48	48	48	48	48	48	48	46	48	48	40	48	48	35	48	48	32	48	39	41	48	33	35	40	43	31	34	38	27	30	33	24	40	29	21
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	31	48	37	41	47	32	36	41	43	32	34	38	28
			Exposed	48	48	48	48	48	48	48	48	46	48	48	39	48	48	34	48	47	31	48	40	43	48	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	52*	56*	55*	40	54*	43	33	53*	35	29	52*	31	38	49	41	34
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	54*	56*	56*	46	56*	45	34	56*	39	33	50	39	33	40	34	29	34	30	25	30	27	22
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	45	56*	50*	35	48*	40	30	40	34	41			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	53*	57*	57*	45	56*	50*	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	27
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	35	43	43	31	43	39	41	43	34	36
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	42*	49*	49*	35	49*	41*	31
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	32	43	42	43	43	36	38
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	33	43	41	42	43	34	37	43	30	32	36	40	28	32	35	25
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	33	43	41	29	43	34	38	43	30	34
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	34	43	43	34	43	41	29	43	33	37	42	29	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	48*	48*	48*	42*	48*	47*	34	47*	37	30	47*	33	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	35	48*	36	30	48*	31	39	48*	41	34	44*	36	30	37	32	27
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	48*	48*	37	47*	44*	32
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	36	49*	41*	31	41*	34	41	34	30	36	30	41	32
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	39	41	45	33	45	36	45	43	30	32
			Exposed	45	45	45	45	45	45	45	45	45	45	45	40	45	45	35	45	45	32	45	45	39	41	45	33	35	40	43	31	34	38	27	30	33	24	40	29	21		
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	37	45	45	31	45	37	41	45	32	36	41	43	32	34	38	28
			Exposed	45	45	45	45	45	45	45	45	45	39	45	45	34	45	45	31	45	45	40	43	45	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19	
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	40	50*	43	33	49*	35	29	50*	31	38	49*	41	34
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	39	50*	46*	34	50*	35	29	50*	30	38	50*	39	33	40	34	29	34	30	25	30	27	22
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	53*	53*	53*	52*	52*	42	49*	49*	35	48*	40	30	40	34	41			
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	52*	54*	54*	45*	53*	49*	35	48*	39	30	37	33	39	32	43	34	42	38	30	38	34	27			

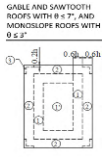
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

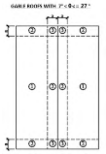
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

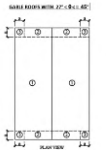
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

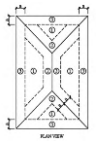












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

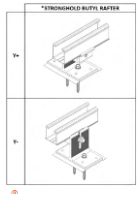
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	31	40	39	41	40	34	36
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	41	41	32
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	36	41	41	31	41	37	41	41	32	36
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	42*	33	45*	35	29	45*	31	39
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	33	45*	35	29	44*	31	39
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	32	40	40	43	40	36	38
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	33	40	40	42	40	34	37	40	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	33	41	41	29	41	34	38	41	30	34
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	34	41	41	29	41	33	37	41	29	32	34	38	~~28~~	30	34	~~25~~	41	~~39~~	~~22~~			
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	34	45*	37	30	45*	33	41
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	35	45*	36	30	45*	31	~~39~~	45*	41	34	44*	36	30
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	31	43	39	41	43	33	36	43	30	32
			Exposed	43	43	43	43	43	43	43	43	43	43	43	40	43	43	43	43	43	35	43	43	32	43	39	41	43	38	~~27~~	30	33	35	40	43	31	34	38	~~27~~	40	~~29~~	~~21~~	
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	31	43	37	41	43	32	36	41	43	32	34	38	~~28~~
			Exposed	43	43	43	43	43	43	43	43	39	43	43	34	43	43	31	43	40	43	43	32	36	40	42	31	33	36	~~27~~	29	32	~~24~~	38	~~28~~	~~21~~	34	~~25~~	~~19~~			
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	43*	33	47*	35	29	46*	31	38	45*	41	34
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	39	48*	46*	34	48*	35	29	48*	30	38	48*	39	33	40	~~34~~	~~29~~	34	30	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	47*	47*	35	46*	40*	30	40*	34	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	48*	35	48*	39*	30	37	33	~~39~~	32	~~43~~	~~34~~	~~42~~	~~38~~	~~30~~	~~38~~	~~34~~	~~27~~
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	31	38	38	41	38	34	36
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37	41*	41*	32			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36	41*	41*	31	41*	37	41	41*	28	32
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	~~39~~	41*	41*	33	41*	35*	29	41*	31	39
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	43	38	36	38			
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	33	38	38	42	38	34	37	38	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38	41*	41*	34	41*	41*	29	41*	33	37	41*	29	32	34	38	~~28~~	30	34	~~25~~	41	~~30~~	~~22~~
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	37*	30	41*	33	41
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	35*	41*	36*	30	41*	31	39	41*	41	34	41*	36	30	37*	32	~~27~~
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	31	40*	34*	41	34*	30	36	30	41	32
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	31	40	39	41	40	33	36	40	30	32
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	32	40	39	41	40	33	35	40	43	31	34	38	~~27~~	30	33	~~24~~	40	~~29~~	~~21~~			
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	31	41	37	41	41	32	36	41	43	32	34	38	~~28~~
			Exposed	41	41	41	41	41	41	41	41	39	41	41	34	41	41	31	41	40	43	41	32	36	40	42	31	33	36	~~27~~	29	32	~~24~~	38	~~28~~	~~21~~	34	~~25~~	~~19~~			
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	43*	33	45*	35	29	44*	31	38	44*	41	34
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	45*	34	45*	35	29	45*	30	38	45*	39	33	40	~~34~~	~~29~~	34	30	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	44*	44*	35	44*	40*	30	40*	34	41
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	35	44*	39*	30	37*	33	39	32	43	34	42	38	30	38	34	~~27~~

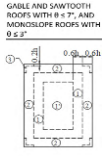
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

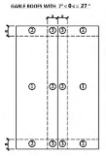
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

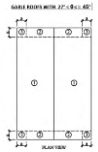
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

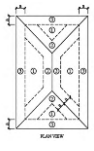












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

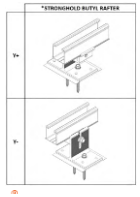
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	92	101	101	88	101	97	84	101	90	78	97	84	73	91	79	68	86	75	65	81	71	62	77	67	60
			Exposed	101	101	91	101	100	87	101	95	82	101	91	79	101	87	75	97	84	72	93	80	70	86	75	65	80	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	94	81	102	86	74	94	80	69	87	74	65	81	70	62	76	66	60	72	63	57
			Exposed	102	102	88	102	97	83	102	92	79	102	87	75	98	83	72	93	79	69	89	76	66	82	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	71	92	73	66	87	68	63	82	65	61
			Exposed	102	102	98	102	102	92	102	96	87	102	91	83	102	87	79	102	83	75	100	79	72	92	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	65	73	68	61
			Exposed	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	101	101	94	101	101	89	101	98	85	101	93	81	101	89	77	99	86	74	95	82	71	88	77	66	82	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	64	82	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	102	102	91	102	100	86	102	94	81	102	89	77	101	85	74	96	81	71	91	78	68	84	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	101	85	74	95	80	70	89	76	66	85	73	64	81	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	102	102	101	102	102	95	102	99	90	102	94	85	102	89	81	102	85	77	102	81	74	95	75	68	88	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	102	89	81	102	84	76	101	80	73	96	76	69	92	72	66	88	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	103	103	103	103	103	102	103	103	97	103	101	92	103	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57
			Exposed	103	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	101	100	86	101	94	82	101	90	78	100	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	102	96	83	102	91	78	102	86	74	96	82	71	91	78	68	87	75	65	83	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	68	86	74	64	82	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	102	101	91	102	95	86	102	90	82	102	85	78	102	81	74	98	78	71	94	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	102	81	74	97	77	70	92	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	60	58	53
		27-45	Interior	103	103	98	103	103	93	103	103	97	103	101	92	103	97	88	102	92	84	97	89	80	89	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	90	78	95	84	73	91	79	68	86	75	65	81	71	62	77	67	60
			Exposed	95	95	91	95	95	87	95	95	82	95	91	79	95	87	75	95	84	72	93	80	70	86	75	65	80	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	94	81	95	86	74	94	80	69	87	74	65	81	70	62	76	66	60	72	63	57
			Exposed	95	95	88	95	95	83	95	92	79	95	87	75	95	83	72	93	79	69	89	76	66	82	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	71	92	73	66	87	68	63	82	65	61
			Exposed	99	99	98	99	99	92	99	96	87	99	91	83	99	87	79	99	83	75	99	79	72	92	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	65
			Exposed	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	95	95	94	95	95	89	95	95	93	81	95	89	77	95	86	74	95	82	71	88	77	66	82	72	63	77	68	60	73	64	57	69	62	55	66	59	61	59	61
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	64	82	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	95	95	91	95	95	86	95	94	81	95	89	77	95	85	74	95	81	71	91	78	68	84	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	95	85	74	95	80	70	89	76	66	85	73	64	81	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	99	99	99	99	99	95	99	99	90	99	94	85	99	89	81	99	85	77	99	81	74	95	75	68	88	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	99	89	81	99	84	76	99	80	73	96	76	69	92	72	66	88	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	102	102	102	102	102	102	102	102	97	102	101	92	102	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57
			Exposed	102	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	95	95	83	95	91	78	95	86	74	95	82	71	91	78	68	87	75	65	83	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	59	60	55
			Exposed	91	78	68	86	74	64	82	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	100	100	91	100	95	86	100	90	82	100	85	78	100	81	74	98	78	71	94	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	100	81	74	97	77	70	92	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	60	58	53
		27-45	Interior	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	77	88	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	86	75	65	81	71	62	77	67	60
			Exposed	86	86	86	86	86	86	86	86	82	86	86	79	86	86	75	86	84	72	86	80	70	86	75	65	80	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	81	86	86	74	86	80	69	86	74	65	81	70	62	76	66	60	72	63	57
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	82	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	71	92	73	66	87	68	63	82	65	61
			Exposed	92	92	92	92	92	92	92	92	87	92	91	83	92	87	79	92	83	75	92	79	72	92	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	91	82	92	85	77	86	80	72	80	75	68	76	71	65
			Exposed	95	95	95	95	95	95	95	95	94	95	95	89	95	94	85	95	90	82	94	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	77	86	86	74	86	82	71	86	77	66	82	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	64	82	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	86	86	86	86	86	86	86	86	81	86	86	77	86	85	74	86	81	71	86	78	68	84	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	86	85	74	86	80	70	86	76	66	85	73	64	81	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	92	89	81	92	84	76	92	80	73	92	76	69	92	72	66	88	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	95	95	95	95	95	95	95	95	95	92	95	95	88	95	92	84	95	95	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57	
			Exposed	95	95	87	95	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	86	82	71	86	78	68	86	75	65	82	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	86	86	83	86	86	78	86	86	74	86	82	71	86	78	68	86	75	65	83	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	86	78	68	86	74	64	82	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	93	93	91	93	93	86	93	90	82	93	85	78	93	81	74	93	78	71	93	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	93	81	74	93	77	70	92	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	89	80	92	85	77	88	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53

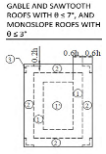
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

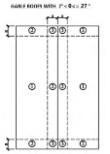
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

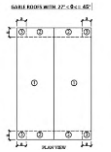
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

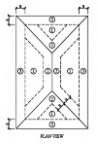












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

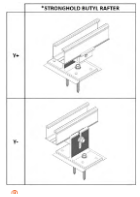
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	73	79	79	68	79	78	75	65	79	71	62	77	67	60
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	70	79	75	65	79	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	80	80	69	80	74	65	80	70	62	76	66	60	72	63	57			
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	76	86	77	71	86	73	66	86	68	63	82	65	61			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	83	86	86	79	86	83	75	86	79	72	86	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	85	77	86	80	72	80	75	68	74	70	65			
			Exposed	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	82	90	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56			
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	71	79	79	71	79	77	66	79	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	64	79	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	71	80	78	68	80	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	80	80	74	80	80	70	80	76	66	80	73	64	80	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	85	77	86	81	74	86	75	68	86	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	86	86	81	86	84	76	86	80	73	86	76	69	86	72	66	86	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57			
			Exposed	90	90	87	90	90	83	90	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	49	53	56	41
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	65	80	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	68	80	74	64	80	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	88	88	88	88	88	86	88	88	82	88	85	78	88	81	74	88	78	71	88	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	88	81	74	88	77	70	88	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	89	80	91	85	77	88	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	91	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	75	65	78	71	62	77	67	60			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	72	78	78	70	78	75	65	78	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	65	78	70	62	76	66	60	72	63	57			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	71	82	73	66	82	68	63	81	65	61			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	67	82	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	85	77	83	80	72	80	75	68	74	70	64			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56			
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	71	78	77	66	78	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	64	78	71	63	78	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	68	78	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	78	78	74	78	78	70	78	76	66	78	73	64	78	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	77	82	81	74	82	75	68	82	74	68	82	74	68	82	74	68	82	74	68	82	74	68	82	74	68
			Exposed	82	82	81	82	82	76	82	80	73	82	76	69	82	72	66	82	69	64	82	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	84	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57			
			Exposed	86	86	86	86	86	83	86	86	79	86	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	49	53	56	41
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	65	80	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	68	80	74	64	80	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	83	83	83	83	83	83	83	83	82	83	83	78	83	81	74	83	78	71	83	74	68	83	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	83	81	74	83	77	70	83	73	67	83	69	64	83	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	87	87	80	87	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	65	74	71	62	74	67	60			
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	70	74	74	65	74	70	62	74	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	65	74	70	62	74	66	60	72	63	57			
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	62	74	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	77	71	78	73	66	78	68	63	77	65	61			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	72	78	73	67	78	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	77	80	80	72	79	75	68	76	71	65			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	63	74	68	60	73	64	57	69	62	55	66	59	61
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	64	74	71	63	74	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	68	74	74	63	74	70	62	74	66	60	72	63	57			
			Exposed	74	74	74	74	74	70	74	74	66	74	73	64	74	70	62	74	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	68	78	70	64	77	65	61	76	62	58	73	60	56	70	57	53
			Exposed	78	78	78	78	78	76	78	78	73	78	76	69	78	72	66	78	69	64	78	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
			Exposed	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	76	66	76	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	76	76	71	76	76	68	76	75	65	76	72	63	76	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	75	65	76	72	63	76	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	76	76	68	76	74	64	76	70	62	76	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	74	80	78	71	80	74	68	80	69	64	79	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	80	80	74	80	77	70	80	73	67	80	69	64	80	66	62	80	69	64	80	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	83	83	77	82	82	74	80	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	84	84	80	84	84	76	84	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53

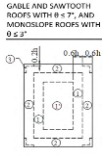
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

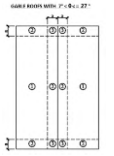
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

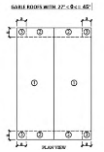
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

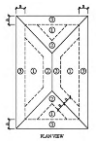












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

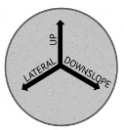
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

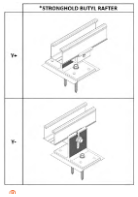
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																					
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	67	60			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	56	68	60	53	64	58	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	65	69	69	62	69	66	60	69	63	57
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	62	69	65	59	69	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	73	66	75	68	63	74	65	61					
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	67	75	68	63	75	64	60	75	61	57	72	59	55	68	56	50
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	77	77	77	72	76	75	68	75	71	65	
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	69	68	60	69	64	57	69	62	55	66	59	61
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	64	69	69	63	69	69	61	69	69	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49	
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	63	69	67	60	69	63	57	68	61	55	65	58	60	62	56	58
			Exposed	69	69	69	69	69	69	69	69	66	69	69	64	69	69	62	69	67	60	69	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	68	75	70	64	74	65	61	73	62	58	72	60	56	70	57	53
			Exposed	75	75	75	75	75	75	75	73	75	75	75	69	75	72	66	75	69	64	75	66	62	75	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	65	72	68	62	67	64	60	64	62	57	
			Exposed	79	79	79	79	79	79	79	79	79	75	79	79	72	79	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57		
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	62	72	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	72	72	71	72	72	68	72	72	65	72	72	63	72	69	61	72	66	59	72	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	65	72	72	63	72	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	72	72	68	72	72	64	72	70	62	72	67	60	72	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	69	64	76	64	60	75	61	58	72	59	55	68	56	50	64	54	58
			Exposed	77	77	74	77	77	70	77	73	67	77	69	64	77	66	62	77	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	60	53	44
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	74	78	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	63	56	64	60	53	64	58	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	63	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	60	53	63	57	57
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	63	71	65	61
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	63	71	64	60	71	61	57	71	59	55	68	56	50
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	72	73	73	68	72	71	65
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	64	57	64	61	55	64	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	63	57	64	61	55	64	60	62	56	58	
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	64	58	64	64	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	70	62	58	69	60	56	68	57	53					
			Exposed	71	71	71	71	71	71	71	71	69	71	71	66	71	69	64	71	66	62	71	63	59	71	59	56	68	57	51	65	54	58	62	60	56	60	57	53			
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	69	73	72	65	71	68	62	67	64	60	64	62	57
			Exposed	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57			
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	67	59	67	63	56	67	67	60	53	64	58	59	62	56
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	61	67	66	59	67	64	57	67	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	66	60	68	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	68	68	68	68	68	64	68	68	62	68	67	60	68	64	58	68	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	69	64	73	64	60	72	61	58	71	59	55	68	56	50	64	54	58
			Exposed	74	74	74	74	74	70	74	73	67	74	69	64	74	66	62	74	64	60	74	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	77	77	77	74	75	75	68	74	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	78	78	78	78	78	78	72	78	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53		
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	63	67	65	61
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	65	61
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	77*	77*	77*	72	71	71	68
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	79*	79*	72	79*	74	68	73	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	59	61
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	58	60	60	56	57	59	61	55	57	59	49
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	58	60	60	56	58
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	55	60	58	60	60	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	66	60	56	64	57	53
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	66	62	67	63	59	67	59	56	67	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	77*	73	72	72	69	70	70	65	68	68	62	66	64	60	64	62	57
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	74	79*	79*	72	79*	74	69	78*	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	56	63	63	56	63	63	60	53	63	58	59	62	56
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	59	63	63	57	63	61	54	63	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	57	63	60	54	63	63	57	59	61	55	57	58	55
			Exposed	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	62	57	63	63	61	55	63	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	69	64	70	64	60	69	61	58	68	59	55	66	56	50	64	54	58
			Exposed	70	70	70	70	70	70	67	70	69	64	70	66	62	70	64	60	70	62	58	70	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44		
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	73	73	68	72	71	61	66	63	59	62	60	56	60	57	51	57	55	58	53		
			Exposed	76	76	76	76	76	76	72	76	76	69	76	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53		

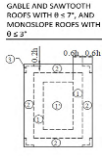
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

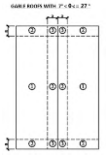
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

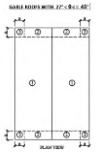
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

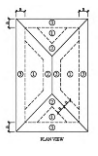












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

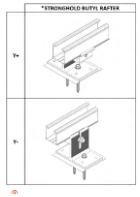
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	53	57	57	59			
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	53	57	57	59	57	55	57
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	59	55	63	56	50
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	73*	73*	72*	71*	71*	68	70*	70*	65
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	68	71*	70*	64	70*	66	61	66	63	59	63	61	56
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	61
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	56	57	57	61	55	57	59	49
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	57	57	60	57	56	58	
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	55	57	57	60	55	56	58	49	53	56	44
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	62	58	63	63	63	60	56	62	57	53	
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	59	56	63	57	51	63	54	58	62	60	56	60	57	53			
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	65	71*	65	62	64	64	60	62	62	57
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	70*	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	60	53	60	58	59	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	59	60	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	59	59	55	57	58	60	55
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	57	60	60	55	60	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	64	60	66	61	58	65	59	55	64	56	50	63	54	58
			Exposed	67	67	67	67	67	67	67	67	67	64	67	66	62	67	64	60	67	62	58	67	59	55	67	56	60	64	51	57	61	58	55	58	56	60	56	50	56	53	44
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	78*	78*	77*	77*	77*	72	78*	71	68	69	69	64	67	66	61	65	63	59	63	61	56	60	58	53
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	72	76*	76*	69	76*	73	66	73	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	59	54	54	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	57	54	54	57
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	59	55	60	56	50
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	64*	64*	64*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	67*	66*	61	66*	63*	59	63*	61	56
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	61
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	61	55	54	59	49
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	54	58
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	60	55	54	58	49	53	56	44
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	57	53
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	59	56	60	57	51	60	54	58	60	60	56	60	57	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	65*	65*	65*	66*	66*	62	64*	64*	60	63*	61	57
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	62	66*	64*	59	63*	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	53	57	57	59	57	56	57			
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	56	57	60	53	56	58	47	53	56	41
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	59	57	57	59	57	55	57	56	60	55
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	54	57	57	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	58	62	59	55	61	56	50	60	54	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	58	63	59	55	63	56	60	63	51	57	61	58	55	58	56	59	56	53	44					
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	64	70*	65	61	63	63	59	62	61	56	60	58	53
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	71*	70*	64	70*	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	54	58

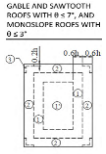
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

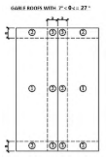
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

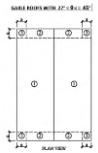
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

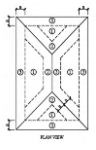












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

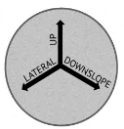
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

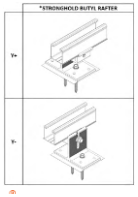
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	86	86	86	86	86	86	86	86	83	86	86	80	86	86	77	86	84	74	86	81	71	86	76	67	81	71	63	76	67	60	72	64	57	69	61	53	66	58	44
			Exposed	86	86	77	86	83	73	86	80	70	86	76	67	83	74	65	80	71	63	78	69	61	73	64	57	68	61	51	65	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	86	86	86	86	86	85	86	86	81	86	86	77	86	84	74	86	81	72	86	78	69	83	73	65	78	68	61	73	64	57	69	61	54	66	58	44	63	56	39
			Exposed	86	84	74	86	80	71	86	77	68	84	73	65	81	71	63	77	68	60	75	66	58	70	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	87	87	87	87	87	87	87	87	84	87	87	81	87	84	78	87	81	75	87	75	70	86	71	66	81	67	62	77	63	59	73	60	56	70	57	50			
			Exposed	87	87	80	87	83	77	87	79	73	87	76	70	87	73	68	86	70	65	83	68	63	77	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	82	87	86	79	87	81	74	81	76	70	77	72	66	72	68	63	69	65	60	66	62	57			
			Exposed	87	87	85	87	87	82	87	85	78	87	82	75	84	78	72	81	76	70	78	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	86	86	78	86	85	75	86	81	72	86	78	69	85	75	66	82	72	64	79	70	62	74	66	58	70	62	55	66	59	45	63	56	39	60	50	34	57	43	30
			Exposed	85	75	66	81	72	63	78	69	61	75	66	59	72	64	56	70	62	54	67	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	86	86	76	86	82	72	86	78	69	86	75	67	82	72	64	79	69	62	76	67	60	71	63	56	67	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	82	72	64	78	69	61	75	66	59	72	63	56	69	61	54	67	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	87	87	82	87	85	79	87	81	75	87	78	72	87	75	69	87	72	67	85	69	64	79	65	60	74	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	87	75	69	87	81	66	83	68	63	80	65	61	77	63	58	74	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	87	87	87	87	87	83	87	87	80	87	83	77	86	80	74	83	77	71	80	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	86	80	74	82	77	70	78	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	86	83	73	86	79	70	86	76	67	82	73	64	79	70	62	76	68	60	74	65	58	69	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	79	70	62	76	67	59	73	64	57	70	62	55	67	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	86	80	70	86	76	67	83	73	64	80	70	62	76	67	60	73	65	57	71	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	76	67	59	73	64	57	70	61	55	67	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	87	83	76	87	79	73	87	75	70	87	72	67	85	69	64	81	67	62	79	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	84	69	64	81	66	61	77	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	87	87	81	87	84	77	87	81	74	83	78	71	80	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	80	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
10	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	81	71	81	76	67	81	71	63	76	67	60	72	64	57	69	61	53	66	58	44			
			Exposed	81	80	77	81	81	73	81	80	70	81	76	67	81	74	65	80	71	63	78	69	61	73	64	57	68	61	51	65	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	81	81	81	81	81	81	81	81	81	81	81	77	81	81	74	81	81	72	81	78	69	81	73	65	78	68	61	73	64	57	69	61	54	66	58	44	63	56	39
			Exposed	81	81	74	81	80	71	81	77	68	81	73	65	81	71	63	77	68	60	75	66	58	70	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	84	81	75	84	75	70	84	71	66	81	67	62	77	63	59	73	60	56	70	57	50
			Exposed	84	84	80	84	83	77	84	79	73	84	76	70	84	73	68	84	70	65	83	68	63	77	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	74	81	76	70	77	72	66	72	68	63	69	65	60	66	62	57
			Exposed	86	86	85	86	86	82	86	85	78	86	82	75	84	78	72	81	76	70	78	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	81	72	64	79	70	62	74	66	58	70	62	55	66	59	45	63	56	39	60	50	34	57	43	30
			Exposed	81	75	66	81	72	63	78	69	61	75	66	59	72	64	56	70	62	54	67	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	81	81	76	81	81	72	81	78	69	81	75	67	81	72	64	79	69	62	76	67	60	71	63	56	67	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	81	72	64	78	69	61	75	66	59	72	63	56	69	61	54	67	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	84	84	82	84	84	79	84	81	75	84	78	72	84	75	69	84	72	67	84	69	64	79	65	60	74	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	84	75	69	84	71	66	83	68	63	80	65	61	77	63	58	74	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	86	86	86	86	86	86	86	86	83	77	86	80	74	83	77	71	80	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39		
			Exposed	86	80	74	82	77	70	78	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	81	81	73	81	79	70	81	76	67	81	73	64	79	70	62	76	68	60	74	65	58	69	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	79	70	62	76	67	59	73	64	57	70	62	55	67	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	81	80	70	81	76	67	81	73	64	80	70	62	76	67	60	73	65	57	71	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	76	67	59	73	64	57	70	61	55	67	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	84	69	64	81	66	61	77	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
			Exposed	87	87	81	87	84	77	87	81	74	83	78	71	80	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
		27-45	Interior	80	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	67	73	71	63	73	67	60	72	64	57	69	61	53	66	58	44
20	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	67	73	73	65	73	71	63	73	69	61	73	64	57	68	61	51	65	58	42	62	55	37	59	47	32	56	40	43
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	65	73	68	61	73	64	57	69	61	54	66	58	44	63	56	39
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	65	73	68	61	73	64	57	69	61	54	66	58	44	63	56	39
			Exposed	73	73	73	73	73	73	73	73	68	73	73	65	73	71	63	73	68	60	73	66	58	70	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	75	70	78	71	66	78	67	62	77	63	59	73	60	56	70	57	50
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	68	78	70	65	78	68	63	77	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	74	81	76	70	77	72	66	72	68	63	69	65	60	66	62	57
			Exposed	81	81	81	81	81	78	81	81	78	81	81	75	81	78	72	81	76	70	78	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	73	73	73	73	73	73	73	73	72	73	73	69	73	73	66	73	72	64	73	70	62	73	66	58	70	62	55	66	59	45	63	56	39	60	50	34	57	43	30
			Exposed	73	73	66	73	72	63	73	69	61	73	66	59	72	64	56	70	62	54	67	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	73	73	73	73	73	72	73	73	69	73	73	67	73	72	64	73	69	62	73	67	60	71	63	56	67	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	73	72	64	73	69	61	73	66	59	72	63	56	69	61	54	67	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	78	78	78	78	78	78	78	78	75	78	78	72	78	75	69	78	72	67	78	69	64	78	65	60	74	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	78	75	69	78	71	66	78	68	63	78	65	61	77	63	58	74	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	81	80	74	81	77	70	78	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	73	73	73	73	73	73	73	73	67	73	73	64	73	70	62	73	68	60	73	65	58	69	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	73	70	62	73	67	59	73	64	57	70	62	55	67	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	73	73	70	73	73	67	73	73	64	73	70	62	73	67	60	73	65	57	71	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	73	67	59	73	64	57	70	61	55	67	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	79	79	76	79	79	73	79	75	70	79	72	67	79	69	64	79	67	62	79	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	79	69	64	79	66	61	77	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	82	82	81	82	82	77	82	81	74	82	78	71	80	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	80	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32

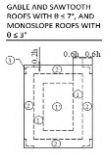
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

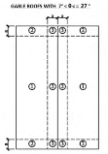
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

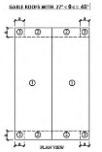
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

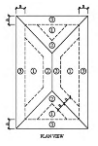












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

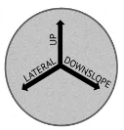
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

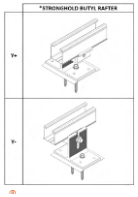
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	57	65	61	53	65	58	44			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	61	65	64	57	65	61	51	65	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	61	66	64	57	66	61	54	66	58	44	63	56	39
			Exposed	66	66	66	66	66	66	66	66	66	66	66	65	66	66	63	66	66	60	66	66	58	66	61	55	65	58	43	62	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	73	67	62	73	63	59	73	60	46	70	57	50
			Exposed	73	73	73	73	73	73	73	73	73	73	73	70	73	73	68	73	70	65	73	68	63	73	63	59	73	60	55	69	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	70	76	72	66	72	68	63	69	65	60	66	62	57
			Exposed	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	70	76	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	62	65	65	58	65	62	55	65	59	45	63	56	39	60	50	34	57	43	30
			Exposed	65	65	65	65	65	63	65	65	61	65	65	59	65	64	56	65	62	54	65	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	66	60	66	63	56	66	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	66	66	64	66	66	61	66	66	59	66	63	56	66	61	54	66	59	46	64	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	72	67	73	69	64	73	65	60	73	61	57	70	58	51	67	55	41	63	45	36	61	39	32
			Exposed	73	73	69	73	71	66	73	68	63	73	65	61	73	63	58	73	61	56	71	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	75	69	74	70	64	70	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	76	76	74	76	76	70	76	73	67	75	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	58	65	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	60	66	65	57	66	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	41	30	34
			Exposed	66	66	59	66	64	57	66	61	55	66	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	74	69	64	74	66	61	74	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	78	71	78	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	78	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
40	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	57	63	61	53	63	58	44
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	63	61	63	58	42	62	55	37	59	47	32	56	40	43
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	57	63	61	54	63	58	44	63	56	39
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	43	50	34	38
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	67	62	68	63	59	68	60	56	68	57	50
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	63	59	68	60	55	68	56	46	65	51	39	62	42	34	59	37	31
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	70	72	72	66	70	68	63	73	73	70	66	62	57
			Exposed	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	70	73	73	67	73	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	58	63	62	55	63	59	45	63	56	39	60	50	34	57	43	30
			Exposed	63	63	63	63	63	63	63	63	61	63	63	59	63	63	56	63	62	54	63	60	48	63	56	39	60	49	33	56	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	56	63	59	47	63	56	39	60	48	34	57	41	30	54	36	40
			Exposed	63	63	63	63	63	61	63	63	59	63	63	56	63	61	54	63	59	46	63	57	41	60	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	60	68	61	57	68	58	51	66	55	41	63	45	36	61	39	32
			Exposed	68	68	68	68	68	66	68	68	63	68	65	61	68	63	58	68	61	56	68	59	54	67	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	71	73	73	69	71	70	64	69	66	61	66	62	57	62	59	54	59	56	44	57	53	39
			Exposed	73	73	73	73	73	70	73	73	67	73	71	65	72	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	62	65	65	60	65	65	58	65	61	54	65	58	42	62	55	37	59	47	32	56	40	43	51	36	38
			Exposed	65	65	62	65	65	59	65	64	57	65	62	55	65	60	48	65	58	42	63	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	66	66	66	66	66	66	66	66	64	66	66	62	66	66	60	66	65	57	66	62	55	66	58	45	62	55	38	59	45	33	56	38	43	49	34	38	43	49	34
			Exposed	66	66	59	66	64	57	66	61	55	66	59	46	64	57	41	62	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	74	74	74	74	74	73	74	74	70	74	72	67	74	69	64	74	67	62	74	64	60	73	60	56	69	57	47	65	51	39	62	42	34	59	37	30	56	33	41
			Exposed	74	69	64	74	66	61	74	63	59	74	61	57	71	59	54	69	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	78	78	78	78	78	77	78	78	74	78	78	71	78	75	69	77	72	66	74	69	64	69	65	60	65	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	78	74	68	76	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32
50	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	53	58	58	44			
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	51	58	58	42	58	55	37	58	47	32	56	40	43
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	57	59	59	54	59	58	44	58	56	39
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	55	59	58	43	59	55	37	59	44	32	56	38	43	50	34	38
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	60	56	63	57	50
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	51	63	56	46
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	72*	66	73*	66	63	65	65	60	63	62	57
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	73*	73*	69	73*	73*	67	73*	68	63	68	64	59	64	61	56	61	58	50	58	55	41	56	48	37			
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	45	58	56	39	58	50	34	57	43	30
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	48	58	56	39	58	49	33	56	41	44	52	36	38	43	31	34	38	42	30			
		7-20	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	47	58	56	39	57	48	34	56	41	30	54	36	40
			Exposed	59	59	59	59	59	59	59	59	59	59	59	56	59	59	54	59	59	46	59	57	41	59	49	34	57	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	58	51	62	55	41	61	45	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	61	63	63	58	63	61	56	63	59	54	63	55	42	63	44	36	60	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69	73*	73*	69	72*	67	64	65	65	61	63	62	57	61	59	39
			Exposed	73*	73*	73*	73*	73*	69	73*	73*	67	73*	69	65	72*	68	62	69	66	60	67	63	58	63	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	54	61	58	42	61	55	37	59	47	32	56	40	43	51	36	38
			Exposed	61	61	61	61	61	59	61	61	57	61	61	55	61	60	48	61	58	42	61	56	38	59	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	61	55	61	58	45	60	55	38	59	45	33	56	38	43	49	34	38	43	49	34	38	41	30	34
			Exposed	61	61	59	61	61	57	61	61	55	61	59	46	61	57	41	61	55	37	60	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	64	66	66	62	66	64	60	66	60	56	65	57	47	63	51	39	62	42	34	59	37	30	56	33	41	30	34	24
			Exposed	66	66	64	66	66	61	66	63	59	66	61	57	66	59	54	66	57	46	66	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	70	70	66	69	69	64	67	65	60	64	61	56	61	58	50	58	55	41	55	48	36	48	41	32
			Exposed	71	71	68	71	71	66	71	68	63	70	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32

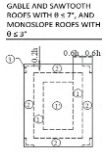
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

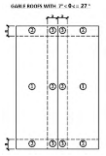
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

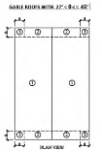
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

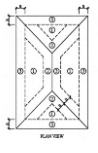












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

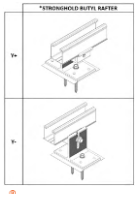
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	44
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	42	54	54	37	54	47	32	54	40	43
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	44	54	54	39
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	43	54	54	37	54	44	32	54	38	43	50	34	38
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	60	60	56	59	57	50
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	55	60	56	46	60	51	39	60	42	34	59	37	31
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	64*	64*	63*	63*	63*	64*	64*	64*	60	62*	62*	57
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	59	64*	61	56	61	58	50	58	55	41	56	48	37
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	45	54	54	39	54	50	34	54	54	30
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	54	39	54	49	33	54	41	44	52	36	38	43	31	34	38	42	30
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	39	54	54	48	34	53	41	30	52	36	40
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	54	41	54	49	34	54	40	30	51	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	59	58	51	58	55	41	57	45	36	56	39	32			
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	54	60	55	42	60	44	36	59	37	31	57	33	41	53	44	36	44	39	32
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	63*	63*	62*	62*	61	62*	62*	57	63*	58	54	57	56	44	55	53	39			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	60	65*	63*	58	63*	59	55	59	56	43	56	49	37	48	41	33	40	36	43	36	32	39		
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	42	56	55	37	56	47	32	56	40	43	51	36	38			
			Exposed	56	56	56	56	56	56	56	56	56	55	56	56	48	56	56	42	56	56	38	56	47	33	56	39	42	48	34	37	41	30	32	36	40	28	32	35	25			
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	45	56	55	38	55	45	33	54	38	43	49	34	38	41	30	34		
			Exposed	57	57	57	57	57	57	55	57	57	46	57	57	41	57	55	37	57	57	48	34	56	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22		
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	60	56	61	57	47	60	51	39	59	42	34	57	37	30	56	33	41		
			Exposed	62	62	62	62	62	62	59	62	61	57	62	59	54	62	57	46	62	55	41	62	42	35	59	36	30	56	31	39	48	41	34	41	36	30	36	32	27			
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	69*	69*	69*	66	68*	68*	64	68*	63	60	61	61	56	59	58	50	57	55	41	55	48	36	48	41	32		
			Exposed	70*	70*	69*	70*	70*	66	70*	69*	63	70*	66	60	67	63	58	65	61	56	62	59	54	58	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32		
70	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	30
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	50	37	50	47	32	50	40	43
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	39
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	37	50	44	32	50	38	43	50	34	38
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	58*	57*	50
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	55	59*	56*	46	59*	51	39	59*	42	34	58*	37	31
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	61*	61*	60*	60*	60*	57*	57*	57*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59*	61*	61*	56*	60*	58*	50	58*	55*	41	56*	48	37
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45	50	50	39	50	50	34	50	43	30
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	39	50	49	33	50	41	44	50	36	38	43	31	34	38	42	30
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	34	50	41	30	49	36	40
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	50	41	50	49	34	50	40	30	50	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	51	58*	55	41	56*	45	36	53	39	32
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	56*	59*	59*	54	59*	55	42	59*	44	36	59*	37	31	57*	33	41	53	44	36	44	39	32
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	62*	60*	60*	60*	59*	59*	59*	57*	57*	57*	56*	56*	54*	54*	44	55*	53	39
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	62*	58*	60*	59*	55*	59*	56*	43	56*	49	37	48	41	33	40	36	43	36	32	39		
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	37	52	52	47	32	52	40	43	51	36
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	42	52	52	38	52	47	33	52	39	42	48	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	45	53	53	38	52	45	33	52	38	43	49	34	38	41	30	34
			Exposed	53	53	53	53	53	53	53	53	53	46	53	53	41	53	53	37	53	48	34	53	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22			
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	58	51	56	42	35	58	41	34	41	36	32	37	33	41
			Exposed	59	59	59	59	59	59	59	59	59	57	59	59	54	59	59	46	59	59	42	59	42	35	58	36	30	56	31	39	48	41	34	41	36	30	36	32	27			
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	63*	63*	62*	62*	62*	60*	60*	60*	61*	61*	56	59*	57	50	55	55	41	54	48	36	48	41	32			
			Exposed	64*	64*	64*	64*	64*	64*	63*	64*	64*	60*	64*	63*	58	63*	61*	56	62*	59*	54	59*	55	42	55	47	36	44	39	31	38	34	41	34	30	36	30	41	32			
80	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	37	47	47	32	47	40	43
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	39
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	32	47	43	47	34	38
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	46	55*	51*	39	55*	42	34	55*	37	31
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	55*	55*	55*	55*	49*	37
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	56*	57*	57*	50*	56*	55*	41	55*	49*	37
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	39	47	47	34	47	43	30
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	38	43	31	34	38	42	30
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	34
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	41	47	47	34	47	40	30	47	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	42	55*	44	36	55*	37	31	55*	33	41	53*	44	36	44	39	32
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	56*	55*	55*	55*	54*	54*	54*	52*	52*	44	51*	51*	39
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	55*	56*	56*	43	55*	49*	37	48*	41	33	40	36	43	36	32	39		
	D	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	37	49	49	47	32	49	40	43	49	36
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	48	49	49	42	49	49	38	49	47	33	49	39	42	48	34	37	41	30	32	36	40	28	32	35	25			
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45	50	50	38	50	45	33	49	38	43	48	34	38	41	30	34
			Exposed	50	50	50	50	50	50	50	50	50	46	50	50	41	50	50	37	50	48	34	50	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22			
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	57*	47	57*	51	39	55*	42	34	52	37	30	51	33	41
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	58*	58*	54	58*	57*	46	58*	55*	41	58*	42	35	58*	36	30	56*	31	39	48	41	34	41	36	30	36	32	27			
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	60*	60*	59*	59*	59*	58*	58*	58*	56*	56*	56*	50	53*	53*	41	54*	48	36	48	41	32			
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	61*	58	60*	60*	56*	59*	59*	54*	58*	56*	42	55*	47	36	44	39	31	38	34	41	34	30	36	30	41	32				

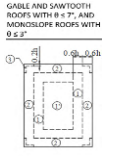
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

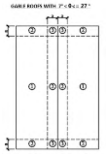
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

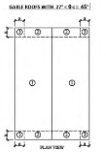
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

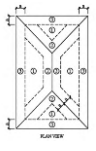












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

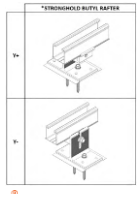
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	37	44	44	32	44	40	43
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	45	45	39
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	37	45	44	32	45	38	43	45	34	38
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	39	49*	42	34	49*	37	31
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	52*	41	52*	48*	37
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	34	44	43	30
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	33	44	41	44	44	36	38	43	31	34	38	42	30
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	39	45	45	34	45	45	39	45	45	34	45	41	30	45	36	40
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	34	45	40	30	45	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41	49*	45*	36	49*	39	32		
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	42	49*	44	36	49*	37	31	49*	33	41	49*	44	36	44	39	32
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	50*	44*	49*	49*	39		
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	37	48*	41	33	40	36	43	36	32	39
	D	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	37	47	47	32	47	40	43	47	36	38
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	38	47	47	33	47	39	42	47	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	47	45	33	47	38	43	46	34	38	41	30	34
			Exposed	47	47	47	47	47	47	47	47	47	46	47	47	41	47	47	37	47	47	34	47	39	43	47	33	37	39	43	32	34	38	28	30	34	25	41	30	22		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47	54*	51*	39	53*	42	34	52*	37	30	51*	33	41
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	46	55*	55*	41	55*	42	35	55*	36	30	54*	31	39	48	41	34	41	36	30	36	32	27		
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	56*	54*	54*	54*	53*	53*	50*	52*	52*	41	50*	48*	36	48*	41	32
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	57*	57*	54*	56*	55*	42	54*	47*	36	44	39	31	38	34	41	34	30	36	30	41	32
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	40	43
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	32	42	42	38	43	42	34	38
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	46*	47*	47*	39	47*	42*	34	47*	37	31
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	47*	37
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	34	42	42	30
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	33	42	41	44	42	36	38	42	31	34	38	42	30
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	34	42	41	30	42	36	40
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	34	42	40	30	42	35	39	41	30	34	36	40	30	32	36	27
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	45*	36	47*	39	32		
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	44*	36	47*	37	31	47*	33	41	47*	44	36	44*	39	32
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	39*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	47*	37	47*	41*	33	40*	36	43	36	32	39
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	37	44	44	32	44	40	43	44	36	38
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	38	44	44	33	44	39	42	44	34	37	41	30	32	36	40	28	32	35	25
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33	45	38	43	45	34	38	41	30	34
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	37	45	45	34	45	39	43	45	33	37	39	43	32	34	38	28	30	34	25	41	30	22		
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	39	49*	42	34	48*	37	30	48*	33	41
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	41	49*	42	35	49*	36	30	49*	31	39	48*	41	34	41	36	30	36	32	27		
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	50*	50*	41	49*	48*	36	47*	41	32
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42	52*	47*	36	45*	39	31	38	34	41	34	30	36	30	41	32

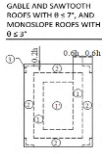
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

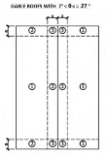
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

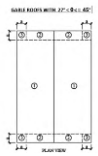
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

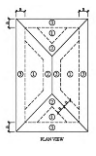












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

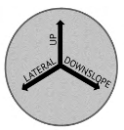
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

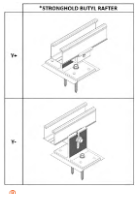
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	102	89	102	98	85	102	91	79	98	85	73	92	80	69	86	75	65	82	71	62	78	68	60
			Exposed	102	102	92	102	101	88	102	96	83	102	92	80	102	88	76	98	84	73	94	81	70	87	76	65	81	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	99	85	102	95	82	102	87	75	95	81	70	88	75	65	82	71	63	77	67	60	73	64	58
			Exposed	102	102	89	102	98	84	102	93	80	102	88	76	99	84	73	94	80	70	90	77	67	83	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	83	103	84	77	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	103	103	99	103	103	93	103	97	88	103	92	84	103	87	80	103	83	76	101	80	73	93	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	65
			Exposed	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	102	102	95	102	102	90	102	99	85	102	94	82	102	90	78	100	86	75	96	83	72	89	77	67	83	72	62	79	67	58	78	68	60	74	65	58	70	62	53
			Exposed	102	90	78	99	86	74	94	82	71	90	78	68	86	75	65	83	72	63	79	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	102	102	92	102	101	87	102	95	82	102	90	78	102	86	75	97	82	71	93	79	68	85	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	102	86	74	96	81	71	90	77	67	86	74	64	82	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	103	103	102	103	103	96	103	100	91	103	95	86	103	90	82	103	86	78	103	82	75	96	76	69	89	70	65	83	66	62	78	63	59	74	60	57	70	58	54
			Exposed	103	90	82	103	85	77	102	80	73	97	76	70	92	73	67	88	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	103	103	103	103	103	103	103	103	98	103	102	93	103	98	88	103	93	85	98	90	81	90	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	103	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	102	101	87	102	95	83	102	91	79	100	87	75	96	83	72	92	80	69	88	77	67	82	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	96	83	72	91	79	68	87	75	65	83	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	102	97	84	102	92	79	102	87	75	97	83	72	92	79	68	88	75	66	84	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	92	79	68	87	74	65	82	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	103	102	92	103	96	87	103	91	83	103	86	78	103	82	75	99	78	72	95	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	103	82	75	98	77	71	93	74	67	89	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	91	79	95	85	73	92	80	69	86	75	65	82	71	62	78	68	60
			Exposed	95	95	92	95	95	88	95	95	83	95	92	80	95	88	76	95	84	73	94	81	70	87	76	65	81	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	94	96	96	89	96	96	85	96	95	82	96	87	75	95	81	70	88	75	65	82	71	63	77	67	60	73	64	58
			Exposed	96	96	89	96	96	84	96	93	80	96	88	76	96	84	73	94	80	70	90	77	67	83	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	94	100	99	90	100	91	83	100	84	77	99	78	71	93	73	67	87	69	64	83	65	61
			Exposed	100	100	99	100	100	93	100	97	88	100	92	84	100	87	80	100	83	76	100	80	73	93	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	99	89	100	92	83	93	86	77	87	80	73	81	76	69	77	72	65
			Exposed	102	102	102	102	102	100	102	102	95	102	100	90	102	95	86	100	91	82	95	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	95	95	95	95	95	90	95	95	85	95	94	82	95	90	78	95	86	75	95	83	72	89	77	67	83	72	62	79	67	58	78	68	60	74	65	58	70	62	53
			Exposed	95	90	78	95	86	74	94	82	71	90	78	68	86	75	65	83	72	63	79	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	96	96	92	96	96	87	96	95	82	96	90	78	96	86	75	96	82	71	93	79	68	85	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	96	86	74	96	81	71	90	77	67	86	74	64	82	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	100	100	100	100	100	96	100	100	91	100	95	86	100	90	82	100	86	78	100	82	75	96	76	69	89	70	65	83	66	62	78	63	59	74	60	57	70	58	54
			Exposed	100	90	82	100	85	77	100	80	73	97	76	70	92	73	67	88	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	98	88	102	93	85	98	90	81	90	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	102	97	88	101	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	95	95	87	95	95	83	95	91	79	95	87	75	95	83	72	92	80	69	88	77	67	82	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	95	83	72	91	79	68	87	75	65	83	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	96	96	84	96	92	79	96	87	75	96	83	72	92	79	68	88	75	66	84	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	92	79	68	87	74	65	82	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	101	101	92	101	96	87	101	91	83	101	86	78	101	82	75	99	78	72	95	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	101	82	75	98	77	71	93	74	67	89	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	103	103	100	103	103	94	103	98	89	103	94	85	98	90	81	93	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	98	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	79	86	85	73	86	80	69	86	75	65	82	71	62	78	68	60
			Exposed	86	86	86	86	86	86	86	86	83	86	86	80	86	86	76	86	84	73	86	81	70	86	76	65	81	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	85	87	87	82	87	87	75	87	81	70	87	75	65	82	71	63	77	67	60	73	64	58
			Exposed	87	87	87	87	87	87	87	87	80	87	87	76	87	84	73	87	80	70	87	77	67	83	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	91	83	92	84	77	92	78	71	92	73	67	87	69	64	83	65	61
			Exposed	92	92	92	92	92	92	92	92	88	92	92	84	92	87	80	92	83	76	92	80	73	92	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	92	83	93	86	77	87	80	73	81	76	69	77	72	65
			Exposed	96	96	96	96	96	96	96	96	95	96	96	90	96	95	86	96	91	82	95	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	86	75	86	83	72	86	77	67	83	72	63	78	68	60	74	65	58	70	62	55	66	60	51
			Exposed	86	86	78	86	86	74	86	82	71	86	78	68	86	75	65	83	72	63	79	69	61	74	65	58	69	62	56	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	87	87	87	87	87	87	87	87	82	87	87	78	87	86	75	87	82	71	87	79	68	85	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	87	86	74	87	81	71	87	77	67	86	74	64	82	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	92	92	92	92	92	92	92	91	92	92	86	92	90	82	92	86	78	92	82	75	92	76	69	89	70	65	83	66	62	78	63	59	74	60	57	70	58	54	54
			Exposed	92	90	82	92	85	77	92	80	73	92	76	70	92	73	67	88	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	93	96	96	88	96	93	85	96	90	81	90	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58	58
			Exposed	96	96	88	96	92	84	96	88	79	91	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	80	69	86	77	67	82	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	86	83	72	86	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	87	87	84	87	87	79	87	87	75	87	83	72	87	79	68	87	75	66	84	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	87	79	68	87	74	65	82	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	94	94	92	94	94	87	94	91	83	94	86	78	94	82	75	94	78	72	94	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	94	82	75	94	77	71	93	74	67	89	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	97	97	97	97	94	97	97	97	89	97	94	85	97	90	81	93	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	97	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54

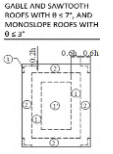
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

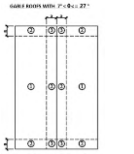
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

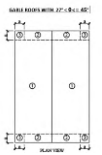
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

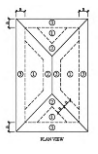












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

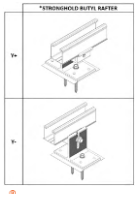
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	75	80	80	71	78	68	60						
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	76	65	80	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	70	80	75	65	80	71	63	77	67	60	73	64	58
			Exposed	80	80	80	80	80	80	80	80	80	80	80	76	80	80	73	80	80	70	80	77	67	80	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	84	77	87	78	71	87	73	67	87	69	64	83	65	61
			Exposed	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	83	76	87	80	73	87	74	67	87	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	86	77	87	80	73	81	76	69	77	72	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	87	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	72	80	77	67	80	72	63	78	68	60	74	65	58	70	62	55	66	60	51
			Exposed	80	80	78	80	80	74	80	80	71	80	78	68	80	75	65	80	72	63	79	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	80	71	80	79	68	80	73	64	79	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	80	80	74	80	80	71	80	77	67	80	74	64	80	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	87	87	87	87	87	87	87	87	87	86	87	87	87	82	87	86	78	87	82	75	87	76	69	87	70	65	83	66	62	78	63	59	74	60	57	70	58	54	
			Exposed	87	87	82	87	85	77	87	80	73	87	76	70	87	73	67	87	70	64	85	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	85	90	90	81	89	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58	
			Exposed	90	90	88	90	90	84	90	88	79	90	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	80	69	80	77	67	80	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	72	80	79	68	80	75	66	80	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	80	79	68	80	74	65	80	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	88	88	88	88	88	87	88	88	83	88	86	78	88	82	75	88	78	72	88	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	88	82	75	88	77	71	88	74	67	88	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	92	92	92	92	92	92	92	92	89	92	92	85	92	90	81	92	86	78	89	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	92	89	81	92	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	69	78	75	65	78	71	62	78	68	60
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	76	65	78	71	62	76	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	70	78	75	65	78	71	63	77	67	60	73	64	58
			Exposed	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	70	78	77	67	78	71	63	77	66	60	71	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	78	71	82	73	67	82	69	64	82	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	76	82	80	73	82	74	67	82	69	63	81	64	60	76	62	58	72	59	56	69	57	51
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	77	84	80	73	81	76	69	77	72	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	77	67	78	72	63	78	68	60	74	65	58	70	62	55	66	60	51
			Exposed	78	78	78	78	78	74	78	78	71	78	78	68	78	75	65	78	72	63	78	69	61	74	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	71	78	78	68	78	73	64	78	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	78	78	74	78	78	71	78	77	67	78	74	64	78	70	62	78	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	75	82	78	63	79	69	60	70	58	54
			Exposed	82	82	82	82	82	77	82	80	73	82	76	70	82	73	67	82	70	64	82	67	62	79	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	85	83	75	83	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	86	86	86	86	86	84	86	86	79	86	84	76	86	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	80	69	80	77	67	80	72	63	77	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	80	80	72	80	79	68	80	75	65	80	72	63	79	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	80	80	80	80	80	79	80	80	75	80	80	72	80	80	69	80	77	67	80	72	64	78	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	80	79	68	80	74	65	80	71	63	78	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	88	88	88	88	88	87	88	88	83	88	86	78	88	82	75	88	78	72	88	75	69	88	69	64	82	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	88	82	75	88	77	71	88	74	67	88	70	65	85	67	62	81	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	88	88	88	88	88	88	88	88	88	88	85	88	88	81	87	86	78	86	82	74	82	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54	
			Exposed	88	88	81	88	85	77	87	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	65	74	71	62	74	68	60
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	70	74	74	65	74	71	62	74	67	59	72	63	57	68	61	54	65	59	60
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	75	75	65	75	71	63	75	67	60	73	64	58
			Exposed	75	75	75	75	75	75	75	75	75	75	75	73	75	75	70	75	75	67	75	71	63	75	66	60	71	63	57	67	60	54	64	58	60	61	55	57	59	51	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	71	78	73	67	78	69	64	78	65	61
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	73	78	78	74	78	78	67	78	74	67	78	69	63	78	65	58	76	62	56	72	59	54
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	77	81	80	73	79	76	69	77
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	79	83	81	73	81	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	67	74	72	63	74	68	60	74	65	58	70	62	55	66	60	51
			Exposed	74	74	74	74	74	74	74	74	71	74	74	68	74	74	65	74	72	63	74	69	61	74	65	58	69	62	56	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	68	75	73	64	75	68	61	73	64	58	69	61	55	65	59	51	63	56	59
			Exposed	75	75	74	75	75	71	75	75	67	75	74	64	75	70	62	75	67	60	75	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	76	69	78	70	65	78	66	62	77	63	59	74	60	57	70	58	54
			Exposed	78	78	78	78	78	77	78	78	73	78	76	70	78	73	67	78	70	64	78	67	62	78	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	81	81	81	75	80	77	70	77	73	66	72	68	63	68	65	60	65	62	58
			Exposed	83	83	83	83	83	83	83	83	79	83	83	76	83	80	72	82	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	76	67	76	72	63	76	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	76	76	72	76	76	68	76	75	65	76	72	63	76	69	61	76	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	76	76	76	76	76	76	76	76	75	76	76	72	76	76	68	76	75	66	76	72	64	76	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	76	76	68	76	74	65	76	71	63	76	68	61	75	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	75	80	78	72	80	75	69	80	69	64	80	65	61	77	62	58	72	59	55	68	57	51	65	54	59
			Exposed	80	80	75	80	77	71	80	74	67	80	70	65	80	67	62	80	65	61	78	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	81	84	84	78	83	82	74	81	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	84	84	81	84	84	77	84	81	73	83	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54

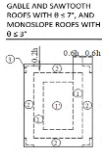
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

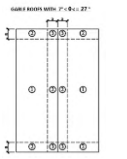
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

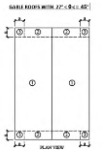
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

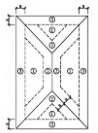












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

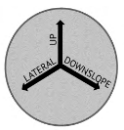
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

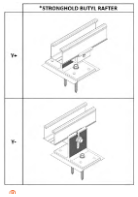
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	68	60
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	67	59	69	63	57	68	61	54	65	59	60
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	70	63	70	67	60	70	64	58
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	63	70	66	60	70	63	57	67	60	54	64	58	60	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	71	75	73	67	75	69	64	75	65	61
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	75	74	67	75	69	63	75	64	60	75	62	58	72	59	56	69	57	51
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	77	78	78	73	76	76	69	75	72	65
			Exposed	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	80	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	63	69	68	60	69	65	58	69	62	55	66	60	51
			Exposed	69	69	69	69	69	69	69	69	69	68	69	69	65	69	69	63	69	69	61	69	65	58	69	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	64	70	68	61	70	64	58	69	61	55	65	59	51	63	56	59
			Exposed	70	70	70	70	70	70	70	70	67	70	70	64	70	70	62	70	67	60	70	65	59	69	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69	75	70	65	75	66	62	74	63	59	73	60	57	70	58	54
			Exposed	75	75	75	75	75	75	75	75	73	75	75	70	75	73	67	75	70	64	75	67	62	75	63	59	73	60	56	69	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	78	78	75	77	77	70	75	73	66	72	68	63	68	65	60	65	62	58
			Exposed	80	80	80	80	80	80	80	80	80	76	80	80	72	80	77	70	79	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	69	73	73	67	73	72	63	73	67	60	72	64	57	68	61	54	65	58	60	62	56	57
			Exposed	73	73	72	73	73	68	73	73	65	73	72	63	73	69	61	73	67	59	73	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	73	73	73	73	73	73	73	73	73	72	73	73	68	73	73	66	73	72	64	73	67	60	72	63	57	67	60	55	64	58	60	61	55	57	59	51	55	57	55
			Exposed	73	73	68	73	73	65	73	71	63	73	68	61	73	65	59	72	63	57	69	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	72	77	75	69	77	69	64	76	65	61	75	62	58	72	59	55	68	57	51	65	54	59
			Exposed	77	77	75	77	77	71	77	74	67	77	70	65	77	67	62	77	65	61	77	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	80	80	74	78	76	69	76	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	81	81	81	81	81	81	81	81	73	81	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	60
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	63	57	65	61	54	65	59	60
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	60	65	64	58
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	60	65	63	57	65	60	57
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	67	72	69	64	72	65	61
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	63	72	64	60	72	62	58	72	59	56	69	57	51
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	62	55	65	60	51
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	61	65	65	58	65	62	55	65	59	49	62	56	58	60	53	55	58	59	51
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	61	65	64	58	65	61	55	64	59	51	63	56	59
			Exposed	65	65	65	65	65	65	65	65	65	64	65	65	62	65	65	60	65	65	59	65	61	56	65	58	50	62	56	58	59	51	55	57	58	50	54	56	45
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	70	64	72	66	62	71	63	59	70	60	57	68	58	54
			Exposed	72	72	72	72	72	72	72	72	70	72	72	67	72	70	64	72	67	62	72	63	59	72	60	56	69	57	52	65	55	59	62	49	56	60	58	54	65	62	58
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	75	74	74	70	73	73	66	72	68	63	68	65	60	65	62	58
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	75	68	75	71	64	70	67	61	66	64	59	63	61	57	65	61	57
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	67	60	68	64	57	68	61	54	65	58	60	62	56	57
			Exposed	68	68	68	68	68	68	68	68	65	68	68	63	68	68	61	68	67	59	68	65	58	68	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	64	68	68	60	68	63	57	67	60	55	64	58	60	61	55	57	59	51	55
			Exposed	68	68	68	68	68	65	68	68	63	68	68	61	68	65	59	68	63	57	68	61	55	64	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	65	74	71	65	73	62	58	72	59	55	68	57	51	65	54	59
			Exposed	74	74	74	74	74	71	74	74	67	74	70	65	74	67	62	74	65	61	74	63	59	73	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	78	77	77	74	76	76	69	74	71	65	71	67	62	66	64	59	63	61	57	61	59	54
			Exposed	79	79	79	79	79	79	73	79	77	70	79	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	54	61	59	60
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	54	61	59	57
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	65	61
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	62	68	68	59	68	57	51
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	81*	81*	74	73	73	73	72	72	69	70	70	65
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73	79*	75	68	74	71	64	70	67	61	66	64	59	63	61	57
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	61	55	61	60	51
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	61	56	58	60	53	55	58	59	51
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	51	60	56	59
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	55	61	59	51	60	56	59	61	58	50	54	56	45
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	66	62	67	63	59	66	60	57	65	58	54
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	64	68	67	62	68	63	59	68	60	56	68	57	52	65	55	59	62	49	56	60	58	54
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	83*	83*	73	72	72	70	71	71	66	69	68	63	67	65	60	65	62	58
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	75	79*	79*	72	79*	75	70	79*	74	67	73	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	64	57	64	61	54	64	58	60	62	56	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	63	64	64	61	64	64	59	64	64	58	64	61	55	64	58	59	61	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	57	64	64	55	63	58	60	61	55	57	59	51	55
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	57	64	64	55	63	58	60	61	55	57	59	51	55
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	69	71	69	64	71	65	61	70	62	58	68	59	55	67	57	51	65	54	59
			Exposed	71	71	71	71	71	71	67	71	70	65	71	67	62	71	65	61	71	63	59	71	59	56	68	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	76	76	76	76	76	75	75	74	74	74	69	72	71	65	70	67	62	66	64	59	63	61	57	61	59	54			
			Exposed	77	77	77	77	77	77	73	77	77	70	76	74	67	75	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54		

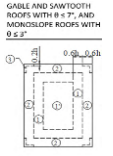
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

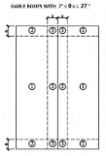
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

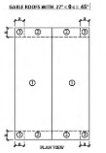
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

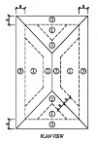












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

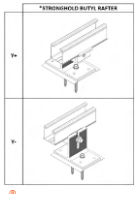
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60			
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	60	58	55	57
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	60	64	62	58	64	59	56
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	72*	71*	71*	65
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68	72*	71*	64	71*	67	61	66	64	59	63	61	57
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	51
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49	57	56	58	57	53	55	57	59	51
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	51	58	56	59
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	50	58	56	58	58	51	55	57	58	50	54	56	45
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	59	64	64	64	62	59	64	60	57	63	58	54
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	63	59	64	60	56	64	57	52	64	55	59	62	49	56	60	58	54			
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	74*	74*	74*	72*	72*	69	71*	71*	66	72*	66	63	65	65	60	63	62	58			
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	73*	69	63	68	64	60	64	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	60	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	58	60	60	55	60	58	59	60	55	57	59	50	54	56	58	48	54	56	42
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	57	61	60	55	61	58	60	60	55	57	59	51	55
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	57	61	61	55	61	58	60	61	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	66	59	55	64	57	51	63	54	59
			Exposed	67	67	67	67	67	67	67	67	67	65	67	67	62	67	65	61	67	63	59	67	59	56	67	56	50	64	52	58	61	59	55	59	57	51	56	50	59	54	45
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	78*	78*	78*	73	72	72	69	70	70	65	68	67	62	66	64	59	63	61	57	61	59	54
			Exposed	79*	79*	79*	79*	79*	74	79*	79*	73	79*	74	70	79*	74	67	74	71	64	72	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	60	55	55	57
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	61	58	61	59	56	61	57	51
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	66*	66*	65*	65*	65*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	67*	61	66*	64*	59	64*	61	57
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	58	54	53	55	54	59	51
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	59
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	58	55	51	55	55	58	50	54	56	45
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	60	57	60	58	54		
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	60	56	61	57	52	61	55	59	61	49	56	60	58	54
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	65*	65*	65*	67*	67*	63	65*	65*	60	64*	61	58
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	63	67*	65*	60	64*	61	57	61	59	55	59	56	60	56	54	58
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	60	57	56	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	59	57	55	57	57	50	54	56	58	48	54	56	42
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	57	51	55
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	55	58	58	60	58	55	57	58	60	54	56	57	48	51	55	42	59	50	37
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	61	64	62	58	63	59	55	62	57	51	61	54	59
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	61	64	63	59	64	59	56	64	56	50	64	52	58	61	59	55	59	57	51	56	54	45
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	73*	73*	73*	72*	72*	69	73*	71*	65	71*	66	62	64	64	59	62	61	57	61	59	54
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	70	72*	72*	67	72*	71*	64	72*	68	63	67	64	59	63	61	56	60	58	52	57	55	59	55	51	56	50	59	54

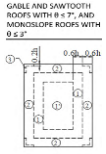
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

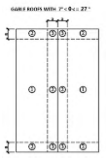
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

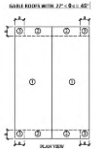
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

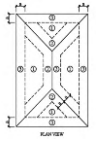












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	81	81	81	81	81	81	81	81	80	81	81	77	81	81	74	81	80	71	81	77	68	81	72	64	77	68	60	73	64	57	69	61	54	66	58	44	63	56	37
			Exposed	81	81	73	81	79	70	81	76	67	81	73	65	80	70	62	77	68	60	74	66	58	69	61	54	65	58	43	62	55	35	59	47	31	56	39	41	52	34	36
		7-20	Interior	81	81	81	81	81	81	81	81	78	81	81	75	81	81	72	81	78	69	81	75	66	80	70	62	75	66	58	71	62	55	67	59	46	63	56	37	61	50	32
			Exposed	81	81	71	81	77	68	81	74	65	81	71	63	78	68	60	75	65	58	72	63	56	67	59	46	63	56	36	59	46	31	56	37	41	51	32	36	41	28	32
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	75	82	78	72	82	73	67	82	68	63	78	64	60	74	61	56	70	61	51	67	55	41
			Exposed	82	82	78	82	80	74	82	77	71	82	73	68	82	70	65	82	68	63	79	65	61	74	61	57	70	57	50	66	54	39	62	42	33	59	35	29	57	31	39
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	77	82	78	72	79	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	82	82	82	82	82	79	82	82	75	82	78	72	81	75	69	78	73	67	75	70	65	70	66	60	66	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	81	81	75	81	81	81	72	81	78	69	81	75	66	81	72	64	79	69	61	76	67	59	71	63	56	67	59	71	63	56	67	59	47	63	56	38	60	50	38
			Exposed	81	72	63	78	69	61	75	66	58	72	63	56	69	61	53	67	59	46	64	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	81	81	73	81	79	70	81	75	67	81	72	64	80	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	79	69	61	76	66	59	72	63	56	69	61	53	67	59	45	64	56	38	62	55	34	58	41	29	54	33	37	42	29	32	34	~~38~~	~~28~~	30	~~34~~	~~25~~	~~41~~	~~30~~	~~22~~
		20-27	Interior	82	82	80	82	82	76	82	78	72	82	75	69	82	72	67	82	69	64	81	67	62	76	62	58	71	59	55	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	82	72	67	82	69	64	80	68	61	77	63	58	74	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	82	82	82	82	82	80	82	82	77	82	80	74	82	77	71	80	74	68	77	72	66	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	82	77	71	79	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	81	79	70	81	75	67	81	72	64	79	69	61	76	67	59	73	65	57	71	62	55	66	59	45	62	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	76	67	59	72	64	57	69	61	54	67	59	46	64	57	40	62	55	35	60	50	32	56	39	~~41~~	50	33	~~35~~	40	~~43~~	~~31~~	34	~~38~~	~~27~~	30	~~33~~	~~24~~	~~40~~	~~29~~	~~21~~
		7-20	Interior	81	77	68	81	73	65	80	70	62	77	67	60	74	64	57	71	62	55	68	60	50	64	56	37	60	48	31	57	37	~~41~~	51	32	~~36~~	41	~~43~~	32	34	~~38~~	~~28~~
			Exposed	73	64	57	70	62	55	67	59	46	64	57	39	62	54	34	60	47	31	58	40	~~43~~	52	32	~~36~~	40	~~42~~	~~31~~	33	~~36~~	~~27~~	29	~~32~~	~~24~~	~~38~~	~~26~~	~~21~~	~~34~~	~~25~~	~~19~~
		20-27	Interior	82	80	74	82	76	70	82	73	67	82	70	64	81	67	62	78	64	60	75	62	58	70	58	52	66	55	40	63	43	33	59	35	29	57	31	~~38~~	53	~~41~~	~~34~~
			Exposed	81	67	62	77	64	59	74	61	57	71	59	54	68	56	46	66	54	39	64	46	34	60	35	29	56	30	~~38~~	50	~~39~~	~~33~~	40	~~34~~	~~29~~	34	~~30~~	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	82	82	78	82	81	75	82	78	71	80	74	69	77	72	66	74	69	64	71	67	61	67	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	~~41~~
			Exposed	77	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	~~39~~	32	~~43~~	~~34~~	42	~~38~~	~~30~~	38	~~34~~	~~27~~
10	B	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	44	63	56	37
			Exposed	76	76	73	76	76	70	76	76	67	76	73	65	76	70	62	76	68	60	74	66	58	69	61	54	65	58	43	62	55	35	59	47	31	56	39	~~41~~	52	34	~~36~~
		7-20	Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	46	63	56	37	61	50	32
			Exposed	76	76	71	76	76	68	76	74	65	76	71	63	76	68	60	75	65	58	72	63	56	67	59	46	63	56	36	59	46	31	56	37	~~41~~	51	32	~~36~~	41	28	~~32~~
		20-27	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	73	67	79	68	63	78	64	60	74	61	56	70	58	51	67	55	41
			Exposed	79	79	78	79	79	74	79	77	71	79	73	68	79	70	65	79	68	63	79	65	61	74	61	57	70	57	50	~~66~~	54	39	62	42	33	59	35	29	57	31	~~39~~
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	65	70	66	60	~~66~~	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	64	76	69	61	76	67	59	71	63	56	67	59	47	63	56	38	60	50	32	57	42	~~43~~	55	36	~~38~~
			Exposed	76	72	63	76	69	61	75	66	58	72	63	56	69	61	53	67	59	46	64	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	76	69	61	76	66	59	72	63	56	69	61	53	67	59	45	64	56	38	62	55	34	58	41	29	54	33	37	42	29	32	34	~~38~~	~~28~~	30	~~34~~	~~25~~	~~41~~	~~30~~	~~22~~
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	63	58	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	79	72	67	79	69	64	79	66	61	77	63	58	74	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	81	77	71	79	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	65	57	71	62	55	66	59	45	62	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	76	67	59	72	64	57	69	61	54	67	59	46	64	57	40	62	55	35	60	50	32	56	39	~~41~~	50	33	~~35~~	40	~~43~~	~~31~~	34	~~38~~	~~27~~	30	~~33~~	~~24~~	~~40~~	~~29~~	~~21~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	73	64	57	70	62	55	67	59	46	64	57	39	62	54	34	60	47	31	58	40	~~43~~	52	32	~~36~~	40	~~42~~	~~31~~	33	~~36~~	~~27~~	29	~~32~~	~~24~~	~~38~~	~~26~~	~~21~~	~~34~~	~~25~~	~~19~~
		20-27	Interior	79	79	79	79	79	76	79	77	71	79	73	68	79	70	65	79	68	63	79	65	61	74	61	57	70	57	50	~~66~~	54	39	62	42	33	59	35	29	57	31	~~39~~
			Exposed	79	72	67	79	69	64	79	66	61	77	63	58	74	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	81	77	71	79	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
			Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	44	63	56	37
			Exposed	76	76	73	76	76	70	76	76	67	76	73	65	76	70	62	76	68	60	74	66	58	69	61	54	65	58	43	62	55	35	59	47	31	56	39	~~41~~	52	34	~~36~~
			Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	46	63	56	37	61	50	32
			Exposed	76	76	71	76	76	68	76	74	65	76	71	63	76	68	60	75	65	58	72	63	56	67	59	46	63	56	36	59	46	31	56	37	~~41~~	51	32	~~36~~	41	28	~~32~~
			Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	73	67	79	68	63	78	64	60	74	61	56	70	58	51	67	55	41
			Exposed	79	79	78	79	79	74	79	77	71	79	73	68	79	70	65	79	68	63	79	65	61	74	61	57	70	57	50	~~66~~	54	39	62	42	33	59	35	29	57	31	~~39~~
			Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	65	70	66	60	~~66~~	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	76	76	75	76	76	72	76	76	69	76	75	66	76	72	64	76	69	61	76	67	59	71	63	56	67	59	47	63	56	38	60	50	32	57	42	~~43~~	55	36	~~38~~
			Exposed	76	72	63	76	69	61	75	66	58	72	63	56	69	61	53	67	59	46	64	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	76	69	61	76	66	59	72	63	56	69	61	53	67	59	45	64	56	38	62	55	34	58	41	29	54	33	37	42	29	32	34	~~38~~	~~28~~	30	~~34~~	~~25~~	~~41~~	~~30~~	~~22~~
		20-27	Interior	79	79	79	79	79	76	79	78	72	79	75	69	79	72	67	79	69	64	79	67	62	76	62	58	71	63	58	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	79	72	67	79	69	64	79	66	61	77	63	58	74	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	81	81	81	81	81	80	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	81	77	71	79	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	76	76	70	76	75	67	76	72	64	76	69	61	76	67	59	73	65	57	71	62	55	66	59	45	62	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	76	67	59	72	64	57	69	61	54	67	59	46	64	57	40	62	55	35	60	50	32	56	39	~~41~~	50	33	~~35~~	40	~~43~~	~~31~~	34	~~38~~	~~27~~	30	~~33~~	~~24~~	~~40~~	~~29~~	~~21~~
		7-20	Interior	76	76	73	76	76	70	76	75	67	76	72	64	76	69	62	76	67	59	74	64	57	69	60	51	64	57	39	61	51	33	58	41	29	55	34	38	46	30	34
			Exposed	73	64	57	70	62	55	67	59	46	64	57	39	62	54	34	60	47	31	58	40	~~43~~	52	32	~~36~~	40	~~42~~	~~31~~	33	~~36~~	~~27~~	29	~~32~~	~~24~~	~~38~~	~~26~~	~~21~~	~~34~~	~~25~~	~~19~~
		20-27	Interior	79	79	79	79	79	76	79	77	71	79	73	68	79	70	65	79	68	63	79	65	61	74	61	57	70	57	50	~~66~~	54	39	62	42	33	59	35	29	57	31	~~39~~
			Exposed	79	72	67	79	69	64	79	66	61	77	63	58	74	61	56	71	58	54	68	56	46	64	48	35	60	36	30	57	31	~~39~~	54	~~41~~	~~34~~	44	~~36~~	~~30~~	37	~~32~~	~~27~~
		27-45	Interior	81	81	81	81	81	81	81	81	77	81	80	74	81	77	71	80	74	68	77	72	66	72	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	81	77	71	79	73	68	76	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
			Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	72	64	76	68	60	73	64	57	69	61	54	66	58	44	63	56	37
			Exposed	76	76	73	76	76	70	76	76	67	76	73	65	76	70	62	76	68	60	74	66	58	69	61	54	65	58	43	62	55	35	59	47	31	56	39	~~41~~	52	34	~~36~~
			Interior	76	76	76	76	76	76	76	76	76	76	76	75	76	76	72	76	76	69	76	75	66	76	70	62	75	66	58	71	62	55	67	59	46	63	56	37	61	50	32
			Exposed	76	76	71	76	76	68	76	74	65	76	71	63	76	68	60	75	65	58	72	63	56	67	59	46	63	56	36	59	46	31	56	37	~~41~~	51	32	~~36~~	41	28	~~32~~
			Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	75	79	78	72	79	73	67	79	68	63	78	64	60	74	61	56	70	58	51	67	55	41
			Exposed	79	79	78	79	79	74	79	77	71	79	73	68	79	70	65	79	68	63	79	65	61	74	61	57	70	57	50	~~66~~	54	39	62	42	33	59	35	29	57	31	~~39~~
			Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	77	81	78	72	79	73	67	74	69	63	70	65	60	66	62	57	63	59	55
			Exposed	81	81	81	81	81	79	81	81	75	81	78	72	81	75	69	78	73	67	75	70	65	70	66	60	~~66~~	62	57	62	58	52	59	56	42	56	49	35	50	40	31
20	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	60	67	64	57	67	61	54	66	58	44	63	56	37
			Exposed	67	67	67	67	67	67	67	67	67	67	67	65	67	67	62	67	67	60	67	67	58	67	67	54	65	58	43	62	55	35	59	47	31	56	39	~~41~~	52	34	~~36~~
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	62	67	66	58	67	62	55	67	59	46	63	56	37	61	50	32
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	60	67	65	58	67	63	56	67	59	46	63	56	36	59	46	31	56	37	~~41~~	51	32	~~36~~	41	28	~~32~~
		20-27	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	67	73	68	63	73	64	60	73	61	56	70	58	51	67	55	41
			Exposed	73	73	73	73	73	73	73	73	71	73	73	68	73	70	65	73	68	63	73	65	61	73	61	57	70	57	50	66	54	39	62	42	33	59	35	29	57	31	~~39~~
		27-45	Interior	76	76	76	76	76	76	76	76

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

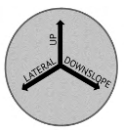
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

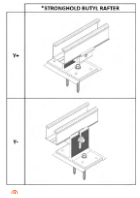
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																					
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	58	44	60	56	37
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	54	60	58	43	60	55	35	59	47	31	56	39	41	52	34	36
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	59	46	60	56	37	60	50	32		
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	59	46	60	56	36	59	46	31	56	37	41	51	32	36	41	28	32
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	56	67	53	67	55	41						
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	63	67	65	61	67	61	57	67	57	50	66	54	39	62	42	33	59	35	29	57	31	39		
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	69	63	70	65	60	66	56	59	63	59	55
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	67	72	70	65	70	66	60	66	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	59	47	60	56	38	60	50	32	57	42	43	55	36	38
			Exposed	60	60	60	60	60	60	60	60	58	60	60	56	60	60	53	60	59	46	60	57	40	60	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	51	60	57	39	60	51	33	58	41	29	55	34	38	46	30	34
			Exposed	60	60	60	60	60	59	60	60	56	60	60	53	60	59	45	60	56	38	60	55	34	58	41	29	54	33	37	42	29	32	34	38	~~28~~	30	34	~~25~~	41	~~30~~	~~22~~
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	62	67	67	59	67	55	42	64	47	34	61	37	30	58	33	41
			Exposed	67	67	67	67	67	64	67	66	61	67	63	58	67	61	56	67	58	54	67	56	46	64	48	35	60	46	30	57	31	~~39~~	54	41	34	44	36	30	37	32	~~27~~
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	71	67	62	67	63	58	64	60	55	60	57	46	57	53	37	55	44	32
			Exposed	72	72	71	72	72	68	72	70	65	72	68	62	70	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	59	45	60	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	60	60	59	60	60	57	60	60	54	60	59	46	60	57	40	60	55	35	60	50	32	56	39	41	50	33	35	40	43	31	34	38	~~27~~	30	33	~~24~~	40	~~29~~	~~21~~
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	60	50	60	56	37	60	48	31	57	37	41	51	32	36	41	43	32	34	38	~~28~~
			Exposed	60	60	57	60	60	55	60	59	46	60	57	39	60	54	34	60	47	31	58	40	43	52	32	36	40	42	31	33	36	~~27~~	29	32	~~24~~	38	~~28~~	~~21~~	34	~~25~~	~~19~~
		20-27	Interior	69	69	69	69	69	69	69	69	67	69	69	64	69	67	62	69	64	60	69	62	58	69	58	52	66	55	40	63	43	33	59	35	29	57	31	38	53	41	34
			Exposed	69	67	62	69	64	59	69	61	57	69	59	54	68	56	46	66	54	39	64	46	34	60	45	30	56	35	29	56	30	38	50	39	33	40	34	~~29~~	34	30	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	73	73	73	73	73	73	73	73	71	73	73	69	73	72	66	73	69	64	71	67	61	67	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	41
			Exposed	73	71	66	73	68	63	70	66	60	67	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	~~27~~
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	54	58	58	44	58	56	37
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	43	58	55	35	58	47	31	56	39	41	52	34	36
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	46	58	56	37	58	50	32
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	46	58	56	36	58	46	31	56	37	41	51	32	36	41	28	32
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	61	56	62	58	51	62	55	41
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	62	61	57	62	57	50	62	54	39	62	42	33	59	35	29	57	31	~~39~~
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	65	65	60	63	62	57	61	59	55
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	66	60	~~66~~	62	57	62	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	47	58	56	38	58	50	32	57	42	43	55	36	38
			Exposed	58	58	58	58	58	58	58	58	56	58	58	53	58	58	46	58	57	40	58	51	33	57	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~			
		7-20	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	51	58	57	39	58	51	33	57	41	29	55	34	38	46	30	34
			Exposed	58	58	58	58	58	58	58	58	56	58	58	53	58	58	45	58	56	38	58	55	34	58	41	29	54	33	37	42	29	32	34	38	~~28~~	30	34	~~25~~	41	~~30~~	~~22~~
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	59	55	62	55	42	61	47	34	60	37	30	58	33	41
			Exposed	62	62	62	62	62	62	62	62	61	62	62	58	62	61	56	62	58	54	62	56	46	62	48	35	60	36	30	57	31	39	54	41	34	44	36	30	37	32	~~27~~
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	62	64	63	58	62	60	55	60	57	46	57	53	37	55	44	32
			Exposed	67	67	67	67	67	67	67	67	65	67	67	62	67	65	60	67	63	58	65	61	56	60	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	55	60	59	45	60	55	36	59	47	31	56	39	41	51	33	36	43	30	32
			Exposed	60	60	59	60	60	57	60	60	54	60	59	46	60	57	40	60	55	35	60	50	32	56	39	41	50	33	35	40	43	31	34	38	~~27~~	30	33	~~24~~	40	~~29~~	~~21~~
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	60	50	60	56	37	60	48	31	57	37	41	51	32	36	41	43	32	34	38	~~28~~
			Exposed	60	60	57	60	60	55	60	59	46	60	57	39	60	54	34	60	47	31	58	40	43	52	32	36	40	42	31	33	36	~~27~~	29	32	~~24~~	38	~~28~~	~~21~~	34	~~25~~	~~19~~
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	62	58	64	58	52	64	55	40	62	43	33	59	35	29	57	31	38	53	41	34
			Exposed	64	64	62	64	64	59	64	61	57	64	59	54	64	56	46	64	54	39	64	46	34	60	35	29	56	30	~~38~~	50	~~39~~	~~33~~	40	34	~~29~~	34	~~30~~	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	67	67	61	65	62	58	63	59	54	59	56	42	56	49	35	49	40	30	40	34	41
			Exposed	69	69	66	69	68	63	69	66	60	67	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	~~39~~	32	43	34	42	38	30	38	34	~~27~~
50	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	44	53	53	37
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	51	58	55	41
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	63*	63*	60	62*	62*	57
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	62*	57	62*	58	52	59	56	42	56	49	35	50	40	31
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	47	53	53	38	53	50	32	53	42	43	53	36	38
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	40	53	51	33	53	41	42	53	34	37	43	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	39	54	51	33	53	41	29	52	34	38	46	30	34
			Exposed	54	54	54	54	54	54	54	54	54	54	54	53	54	54	45	54	54	38	54	54	34	54	41	29	54	33	37	42	29	32	34	38	~~28~~	30	34	~~25~~	41	~~30~~	~~22~~
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	55	42	57	47	34	56	37	30	55	33	41
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	46	58	58	42	58	58	46	58	48	35	58	36	30	57	31	~~39~~	54	41	34	44	36	30	37	32	~~27~~
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	62*	62*	62*	62*	58	62*	58	55	56	56	46	55	53	37	53	44	32
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	60	63*	63*	58	63*	61*	56	61*	57	46	57	52	36	51	41	31	40	34	41	34	30	36	30	41	32		
	D	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	45	56	55	36	56	47	31	56	39	41	51	33	36	43	30	32
			Exposed	56	56	56	56	56	56	56	56	54	56	56	46	56	56	40	56	55	35	56	50	32	56	39	41	50	33	35	40	43	31	34	38	~~27~~	30	33	~~24~~	40	~~29~~	~~21~~
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	50	56	56	37	55	48	31	54	37	41	51	32	36	41	43	32	34	38	~~28~~
			Exposed	56	56	56	56	56	55	56	56	46	56	56	39	56	54	34	56	47	31	56	40	43	52	32	36	40	42	31	33	36	~~27~~	29	32	~~24~~	38	~~28~~	~~21~~	34	~~25~~	~~19~~
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	58	52	60	55	40	58	43	33	57	35	29	56	31	38	53	41	34
			Exposed	60	60	60	60	60	59	60	60	57	60	59	54	60	56	46	60	54	39	60	46	34	60	35	29	56	30	~~38~~	50	~~39~~	~~33~~	40	34	~~29~~	34	~~30~~	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	64	66*	66*	61	66*	61	58	59	59	54	57	56	42	55	49	35	49	40	30	40	34	41
			Exposed	67*	67*	66*	67*	67*	63	67*	66*	60	67*	63	58	65	61	56	62	59	52	60	57	45	56	49	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	~~27~~

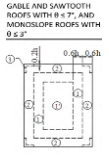
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

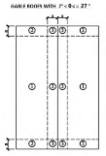
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

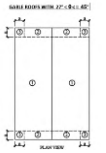
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

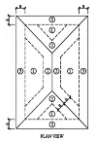












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

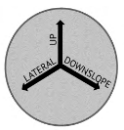
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

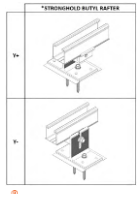
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	37					
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	35	49	47	31	49	39	41	49	34	36
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	37	49	49	32		
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	36	49	46	31	49	37	41	49	32	36	41	28	32
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	51	57*	55*	41			
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	50	57*	54*	39	57*	42	33	57*	35	29	57*	31	39
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	58*	58*	56*	56*	56*	55*	55*	55*			
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	58*	52*	58*	56*	42	56*	49	35	50	40	31	
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	38	49	49	32	49	42	43	49	36	38
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	40	49	49	33	49	41	42	49	34	37	43	30	32	36	40	28	32	35	25
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	39	49	49	33	49	41	29	49	34	38	46	30	34
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	45	49	49	38	49	49	34	49	41	29	49	33	37	42	29	32	34	38	28	30	34	25	41	39	22
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	55*	57*	55*	42	56*	47	34	55*	37	30	54*	33	41
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	56*	46	57*	48	35	57*	36	30	57*	31	39	54*	41	34	44	36	30	37	32	27
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	59*	58*	58*	58*	57*	57*	57*	55*	55*	55*	54*	54*	46	52*	52*	37	52*	44	32
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	56*	58*	57*	46	57*	52*	36	52*	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	36	52	47	31	52	39	41	51	33	36	43	30	32
			Exposed	52	52	52	52	52	52	52	52	52	46	52	52	40	52	52	35	52	50	32	52	39	41	50	33	35	40	43	31	34	38	27	30	33	24	40	29	21		
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	37	52	48	31	51	37	41	50	32	36	41	43	32	34	38	28
			Exposed	52	52	52	52	52	52	52	52	46	52	52	39	52	52	34	52	47	31	52	40	43	52	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19
		20-27	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	56	55	40	55	43	33	54	35	29	53	31	38	52	41	34
			Exposed	57	57	57	57	57	57	57	57	57	54	57	56	46	57	54	39	57	46	34	57	35	29	56	30	38	50	39	33	40	34	29	34	30	38	25	30	27	22	
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	60*	60*	58*	58*	58*	59*	59*	54	57*	55	42	53	49	35	49	40	30	40	34	41	
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	61*	58*	61*	61*	56	61*	59*	52	60*	57*	45	56	49	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	27
70	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37					
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	35	46	46	31	46	39	41	46	34	36
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	37	46	46	32		
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	32
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	41
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	39	51*	42	33	51*	35	29	51*	31	39
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	53*	53*	53*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	55*	42	54*	49*	35	50*	40	31
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38					
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	33	46	41	42	46	34	37	43	30	32	36	40	28	32	35	25
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	33	46	46	29	46	34	38	45	30	34
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	38	46	46	34	46	41	29	46	33	37	42	29	32	34	38	28	30	34	25	41	30	22
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46	51*	48*	35	51*	36	30	51*	31	39	51*	41	34	44	36	30
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	48*	35	51*	36	30	51*	31	39	51*	41	34	44	36	30	37	32	27
		27-45	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	54*	46*	50*	50*	37	49*	44	32
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47*	54*	52*	36	51*	41	31	40	34	41	34	30	36	30	41	32
	D	0-7	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	48	48	39	41	48	33	36	43	30	32					
			Exposed	48	48	48	48	48	48	48	48	48	46	48	48	40	48	48	35	48	48	32	48	39	41	48	33	35	40	43	31	34	38	27	30	33	24	40	29	21		
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	37	48	48	31	48	37	41	47	32	36	41	43	32	34	38	28
			Exposed	48	48	48	48	48	48	48	48	46	48	48	39	48	48	34	48	47	31	48	40	43	48	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	52*	56*	55*	40	54*	43	33	53*	35	29	52*	31	38	49	41	34
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	54*	56*	56*	46	54*	39	56*	46	34	56*	35	39	33	40	34	29	34	30	25	30	27	22
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	57*	57*	56*	56*	56*	54*	54*	54*	52*	52*	42	51*	49*	35	50*	40	30	40	34	41
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	53*	57*	57*	45	56*	50*	35	48	39	30	37	33	39	32	43	34	42	38	30	38	34	27
80	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37					
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	35	43	43	31	43	39	41	43	34	36
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	32		
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	31
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41*	31
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38					
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	32		
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	32
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	35	48*	36	30	48*	31	39	48*	41	34	44*	36	30	37	32	27
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	48*	48*	37	47*	44*	32		
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	36	49*	41*	31	41*	34	41	34	30	36	30	41	32			
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	39	41	45	33	43	30	32		
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	35	45	45	32	45	39	41	45	33	35	40	43	31	34	38	27	30	33	24	40	29	21		
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	37	45	45	31	45	37	41	45	32	36	41	43	32	34	38	28
			Exposed	45	45	45	45	45	45	45	45	45	39	45	45	34	45	45	31	45	45	40	43	45	32	36	40	42	31	33	36	27	29	32	24	38	28	21	34	25	19	
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	40	50*	43	33	49*	35	29	50*	31	38	49*	41	34
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	39	50*	46*	34	50*	35	29	50*	30	38	50*	39	33	40	34	29	34	30	25	30	27	22		
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	53*	53*	53*	52*	52*	42	49*	49*	35	48*	40	30	38	34	41			
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	52*	54*	54*	52*	54*	54*	45*	53*	49*	35	48*	39	30	37	33	39	32	43	34	42	38	30	38	34	27		

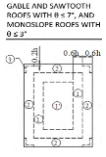
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

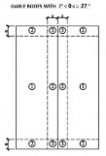
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

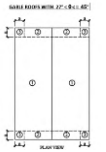
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

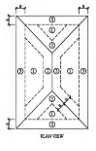












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

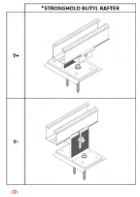
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	31	40	39	41	40	34	36
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	41	41	32
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	36	41	41	31	41	37	41	41	32	36	41	28	32
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	42*	33	45*	35	29	45*	31	39
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	44*	44*	35	44*	40*	31
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	43	40	36	38			
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	33	40	40	42	40	34	37	40	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	33	41	41	29	41	34	38	41	30	34			
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	34	41	41	29	41	33	37	41	29	32	34	38	~~28~~	30	34	~~25~~	41	~~39~~	~~22~~
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	34	45*	37	30	45*	33	41
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	35	45*	36	30	45*	31	39	45*	41	34	44*	36	30	37	32	~~27~~
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	36*	44*	41*	31	40*	34	41	34	30	36	30	41	32
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	31	43	39	41	43	33	36	43	30	32
			Exposed	43	43	43	43	43	43	43	43	43	43	43	40	43	43	43	43	43	35	43	43	32	43	39	41	43	33	35	40	43	31	34	38	~~27~~	30	33	~~24~~	40	~~29~~	~~21~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	31	43	37	41	43	32	36	41	43	32	34	38	~~28~~
			Exposed	43	43	43	43	43	43	43	43	39	43	43	34	43	43	31	43	43	40	43	43	32	36	40	42	31	33	36	~~27~~	29	32	~~24~~	38	~~28~~	~~21~~	34	~~25~~	~~19~~			
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	43*	33	47*	35	29	46*	31	38	45*	41	34
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	39	48*	46*	34	48*	35	29	48*	30	38	48*	39	33	40	34	~~29~~	34	30	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	47*	47*	35	46*	40*	30	40*	34	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	48*	35	48*	39*	30	37	33	39	32	43	34	42	38	30	38	34	~~27~~
100	B	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	38	38	38	31	38	38	41	38	34	36			
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37	41*	41*	32			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36	41*	41*	31	41*	37	41	41*	32	36	41*	28	32
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	33	41*	35*	29	41*	31	39
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	31
	C	0-7	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	43	38	36	38			
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	33	38	38	42	38	34	37	38	30	32	36	40	~~28~~	32	35	~~25~~
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	33	41*	41*	29	41*	34	38			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38	41*	41*	34	41*	41*	29	41*	33	37	41*	29	32	34	38	~~28~~	30	34	~~25~~	41	~~30~~	~~22~~
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	41*	34*	41*	37*	30	41*	33	41
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	35*	41*	36*	30	41*	31	39	41*	41	34	41*	36	30	37*	32	~~27~~
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*	40*	40*	33*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	31	40*	34*	41	34*	30	36	30	41	32
	D	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	31	40	39	41	40	33	36	40	30	32
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	32	40	39	41	40	33	35	40	43	31	34	38	~~27~~	30	33	~~24~~	40	~~29~~	~~21~~
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	31	41	41	29	41	32	36	41	43	32	34	38	~~28~~
			Exposed	41	41	41	41	41	41	41	41	39	41	41	34	41	41	31	41	40	43	41	32	36	40	42	31	33	36	~~27~~	29	32	~~24~~	38	~~28~~	~~21~~	34	~~25~~	~~19~~			
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	45*	34	45*	35	29	45*	30	38	45*	43*	33	45*	35	29	45*	40*	31	44*	41	34
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	45*	34	45*	35	29	45*	30	38	45*	39	33	40*	34	~~29~~	34	30	~~25~~	30	~~27~~	~~22~~
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	44*	44*	35	44*	40*	30	40*	34	41
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	35	44*	39*	30	37*	33	39	32	43	34	42	38	30	38	34	~~27~~

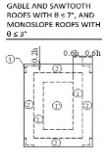
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

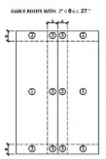
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

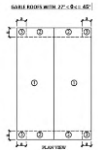
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

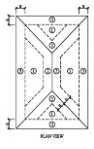












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

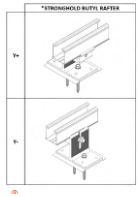
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	101	101	101	101	101	101	101	101	101	101	101	96	101	101	92	101	101	88	101	97	84	101	90	78	97	84	73	91	79	68	86	75	65	81	71	62	77	67	60
			Exposed	101	101	91	101	100	87	101	95	82	101	91	79	101	87	75	97	84	72	93	80	70	86	75	65	80	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	102	102	102	102	102	102	102	102	98	102	102	93	102	102	88	102	98	84	102	94	81	102	86	74	94	80	69	87	74	65	81	70	62	76	66	60	72	63	57
			Exposed	102	102	88	102	97	83	102	92	79	102	87	75	98	83	72	93	79	69	89	76	66	82	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	93	102	98	89	102	90	82	102	83	76	98	77	71	92	73	66	87	68	63	82	65	61
			Exposed	102	102	98	102	102	92	102	96	87	102	91	83	102	87	79	102	83	75	100	79	72	92	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	65
			Exposed	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	101	101	94	101	101	89	101	98	85	101	93	81	101	89	77	99	86	74	95	82	71	88	77	66	82	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	64	82	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	102	102	91	102	100	86	102	94	81	102	89	77	101	85	74	96	81	71	91	78	68	84	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	101	85	74	95	80	70	89	76	66	85	73	64	81	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	102	102	101	102	102	95	102	99	90	102	94	85	102	89	81	102	85	77	102	81	74	95	75	68	88	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	102	89	81	102	84	76	101	80	73	96	76	69	92	72	66	88	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	103	103	103	103	103	102	103	103	97	103	101	92	103	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57
			Exposed	103	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	101	100	86	101	94	82	101	90	78	100	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	102	96	83	102	91	78	102	86	74	96	82	71	91	78	68	87	75	65	83	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	68	86	74	64	82	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	102	101	91	102	95	86	102	90	82	102	85	78	102	81	74	98	78	71	94	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	102	81	74	97	77	70	92	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	60	58	53
		27-45	Interior	103	103	98	103	103	93	103	97	88	102	93	84	97	89	80	92	85	77	88	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	59	56	60	57	51	57	55	58	55	60	56	60	58	53
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	90	78	95	84	73	91	79	68	86	75	65	81	71	62	77	67	60
			Exposed	95	95	91	95	95	87	95	95	82	95	91	79	95	87	75	95	84	72	93	80	70	86	75	65	80	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	94	81	95	86	74	94	80	69	87	74	65	81	70	62	76	66	60	72	63	57
			Exposed	95	95	88	95	95	83	95	92	79	95	87	75	95	83	72	93	79	69	89	76	66	82	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	93	99	98	89	99	90	82	99	83	76	98	77	71	92	73	66	87	68	63	82	65	61
			Exposed	99	99	98	99	99	92	99	96	87	99	91	83	99	87	79	99	83	75	99	79	72	92	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	98	88	99	91	82	92	85	77	86	80	72	80	75	68	76	71	65
			Exposed	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	99	90	82	94	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	95	95	94	95	95	89	95	95	93	81	95	89	77	95	86	74	95	82	71	88	77	66	82	72	63	77	68	60	73	64	57	69	62	55	66	59	61	59	61
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	64	82	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	95	95	91	95	95	86	95	94	81	95	89	77	95	85	74	95	81	71	91	78	68	84	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	95	85	74	95	80	70	89	76	66	85	73	64	81	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	99	99	99	99	99	95	99	99	90	99	94	85	99	89	81	99	85	77	99	81	74	95	75	68	88	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	99	89	81	99	84	76	99	80	73	96	76	69	92	72	66	88	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	102	102	102	102	102	102	102	102	97	102	101	92	102	97	88	102	92	84	97	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57
			Exposed	102	96	87	100	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	95	95	86	95	94	82	95	90	78	95	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	95	82	71	90	78	68	86	75	65	82	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	95	95	83	95	91	78	95	86	74	95	82	71	91	78	68	87	75	65	83	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	91	78	68	86	74	64	82	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	100	100	91	100	95	86	100	90	82	100	85	78	100	81	74	98	78	71	94	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	100	81	74	97	77	70	92	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	60	58	53
		27-45	Interior	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	77	88	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	59	56	60	57	51	57	55	58	55	60	56	60	58	53
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	78	86	84	73	86	79	68	86	75	65	81	71	62	77	67	60
			Exposed	86	86	86	86	86	86	86	86	82	86	86	79	86	86	75	86	84	72	86	80	70	86	75	65	80	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	81	86	86	74	86	80	69	86	74	65	81	70	62	76	66	60	72	63	57
			Exposed	86	86	86	86	86	83	86	86	79	86	86	75	86	83	72	86	79	69	86	76	66	82	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	90	82	92	83	76	92	77	71	92	73	66	87	68	63	82	65	61
			Exposed	92	92	92	92	92	92	92	92	87	92	91	83	92	87	79	92	83	75	92	79	72	92	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	88	95	91	82	92	85	77	86	80	72	80	75	68	76	71	65
			Exposed	95	95	95	95	95	95	95	95	94	95	95	89	95	94	85	95	90	82	94	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	86	86	86	86	86	86	86	86	85	86	86	81	86	86	77	86	86	74	86	82	71	86	77	66	82	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	86	86	77	86	85	73	86	81	70	86	77	67	85	74	64	82	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	86	86	86	86	86	86	86	86	81	86	86	77	86	85	74	86	81	71	86	78	68	84	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	86	85	74	86	80	70	86	76	66	85	73	64	81	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	92	92	92	92	92	92	92	92	90	92	92	85	92	89	81	92	85	77	92	81	74	92	75	68	88	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	92	89	81	92	84	76	92	80	73	92	76	69	92	72	66	88	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	95	95	95	95	95	95	95	95	95	92	95	95	88	95	92	84	95	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57		
			Exposed	95	95	87	95	91	83	95	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	86	86	86	86	86	82	86	86	78	86	86	74	86	82	71	86	79	68	86	76	66	81	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	86	82	71	86	78	68	86	75	65	82	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	86	86	83	86	86	78	86	86	74	86	82	71	86	78	68	86	75	65	83	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	86	78	68	86	74	64	82	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	93	93	91	93	93	86	93	90	82	93	85	78	93	81	74	93	78	71	93	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	93	81	74	93	77	70	92	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44
		27-45	Interior	96	96	96	96	96	96	96	96	88	96	93	84	96	89	80	92	85	77	88	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	96	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53

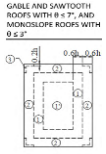
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

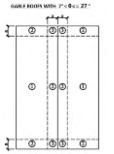
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

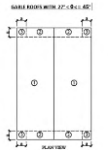
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

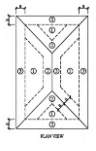












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

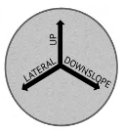
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

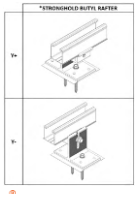
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	73	79	79	68	79	75	65	79	71	62	77	67	60
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	72	79	79	70	79	75	65	79	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	74	80	80	69	80	74	65	80	70	62	76	66	60	72	63	57
			Exposed	80	80	80	80	80	80	80	80	79	80	80	75	80	80	72	80	79	69	80	76	66	80	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	76	86	77	71	86	73	66	86	76	63	82	65	61
			Exposed	86	86	86	86	86	86	86	86	86	86	86	83	86	86	79	86	83	75	86	79	72	86	73	67	86	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	82	89	85	77	86	80	72	80	75	68	76	71	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	82	90	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	79	79	79	79	79	79	79	79	79	79	79	77	79	79	74	79	79	71	79	79	71	79	77	66	79	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	79	79	77	79	79	73	79	79	70	79	77	67	79	74	64	79	71	63	79	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	77	80	80	74	80	80	71	80	78	68	80	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	80	80	74	80	80	70	80	76	66	80	73	64	80	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	85	77	86	81	74	86	75	68	86	70	64	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	86	86	81	86	84	76	86	80	73	86	76	69	86	72	66	86	69	64	84	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	89	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57	62	59	57
			Exposed	90	90	87	90	90	83	90	87	79	90	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	65	80	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	68	80	74	64	80	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	58	57	47	50	55	41	58	49	37
		20-27	Interior	88	88	88	88	88	86	88	88	82	88	85	78	88	81	74	88	78	71	88	74	68	87	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	88	81	74	88	77	70	88	73	67	88	69	64	84	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44
		27-45	Interior	91	91	91	91	91	91	91	91	88	91	91	84	91	89	80	91	85	77	88	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	91	88	80	91	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
40	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	78	68	78	75	65	78	71	62	77	67	60
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	70	78	75	65	78	70	62	75	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	74	78	78	69	78	74	65	78	70	62	76	66	60	72	63	57
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	72	78	78	69	78	76	66	78	70	62	76	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	77	71	82	73	66	82	68	63	81	65	61
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	82	73	67	82	68	63	80	64	60	76	61	57	72	59	55	68	56	50
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	85	85	77	83	80	72	80	75	68	76	71	65
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	82	86	86	78	86	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	71	78	77	66	78	72	63	77	68	60	73	64	57	69	62	55	66	59	61
			Exposed	78	78	77	78	78	73	78	78	70	78	77	67	78	74	64	78	71	63	78	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	78	71	78	78	68	78	72	63	78	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	78	78	74	78	78	70	78	76	66	78	73	64	78	70	62	77	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	82	82	77	82	81	74	82	75	68	82	74	67	82	65	61	78	62	58	73	60	56	70	57	53
			Exposed	82	82	81	82	82	76	82	80	73	82	76	69	82	72	66	82	69	64	82	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	80	84	82	74	82	77	69	76	72	65	72	68	62	67	64	60	64	62	57	62	59	57
			Exposed	86	86	86	86	86	83	86	86	79	86	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	79	79	79	79	79	79	79	79	78	79	79	74	79	79	71	79	79	68	79	76	66	79	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	79	79	71	79	78	68	79	75	65	79	72	63	79	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	80	80	80	80	80	78	80	80	74	80	80	71	80	78	68	80	75	65	80	72	63	77	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	80	78	68	80	74	64	80	70	62	78	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	83	83	83	83	83	83	83	83	82	83	83	78	83	81	74	83	78	71	83	74	68	83	69	64	81	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	83	81	74	83	77	70	83	73	67	83	69	64	83	66	62	81	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	86	82	74	81	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	87	87	80	87	84	76	86	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
50	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	68	74	74	65	74	71	62	74	67	60
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	70	74	74	65	74	70	62	74	66	59	71	63	56	68	60	53	64	58	59
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	74	65	74	70	62	74	66	60	72	63	57
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	74	74	69	74	74	66	74	74	70	62	74	65	59	71	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	71	78	73	66	78	68	63	77	65	61
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	78	77	71	78	73	66	78	68	63	77	65	61
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	81	81	77	80	80	72	79	75	68	76	71	65
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	82	80	72	80	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	66	74	72	63	74	68	60	73	64	57	69	62	55	66	59	61
			Exposed	74	74	74	74	74	73	74	74	70	74	74	67	74	74	64	74	71	63	74	69	61	73	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	72	63	74	67	60	73	63	57	68	61	55	65	58	60	62	56	58
			Exposed	74	74	74	74	74	70	74	74	66	74	73	64	74	70	62	74	67	60	74	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	78	78	74	78	75	68	78	70	64	77	65	61	76	62	58	73	60	56	70	57	53
			Exposed	78	78	78	78	78	76	78	78	73	78	76	69	78	72	66	78	69	64	78	66	62	78	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	81	81	74	79	76	72	65	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
			Exposed	82	82	82	82	82	82	82	82	79	82	82	75	82	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	76	76	76	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	76	66	76	71	62	76	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	76	76	71	76	76	68	76	75	65	76	72	63	76	69	61	76	66	59	73	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	76	76	76	76	76	76	76	76	74	76	76	71	76	76	68	76	75	65	76	72	63	76	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	76	76	68	76	74	64	76	70	62	76	67	60	74	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	80	80	80	80	80	80	80	80	80	80	80	78	80	80	74	80	78	71	80	74	68	80	69	64	79	64	60	76	61	58	72	59	55	68	56	50	64	54	58
			Exposed	80	80	74	80	77	70	80	73	67	80	69	64	80	66	62	80	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	83	83	77	82	82	74	80	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	84	84	80	84	84	76	84	80	72	82	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53

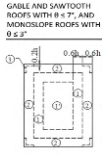
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

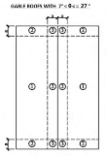
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

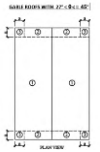
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

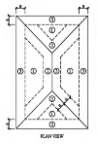












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

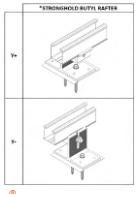
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	65	69	69	62	69	67	60			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	59	69	63	56	68	60	53	64	58	59
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	62	69	66	60	69	63	57			
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	62	69	65	59	69	62	56	66	60	53	63	57	59	61	55	57
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	73	66	75	68	63	74	65	61			
			Exposed	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	73	67	75	68	63	75	64	60	75	61	57	72	59	55	68	56	50
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	72	79	79	72	79	75	68	74	70	64	70	66	61			
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	79	79	72	79	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	64	69	68	60	69	64	57	69	62	55	66	59	61
			Exposed	69	69	69	69	69	69	69	69	69	67	69	69	64	69	69	63	69	69	61	69	69	64	57	69	61	55	65	58	60	62	56	57	59	61	55	57	59	49	
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	69	69	63	69	67	60	69	63	57	68	61	55	65	58	60			
			Exposed	69	69	69	69	69	69	69	69	66	69	69	64	69	69	62	69	67	60	69	64	58	68	61	55	64	58	60	61	55	57	59	60	55	56	58	49	53	56	44
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	68	75	70	64	74	65	61	73	62	58	72	60	56			
			Exposed	75	75	75	75	75	75	75	75	73	75	75	69	75	72	66	75	69	64	75	66	62	75	63	59	73	59	56	68	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	74	76	76	69	75	72	65	72	68	62	67	64	60	64	62	57	
			Exposed	79	79	79	79	79	79	79	79	79	75	79	79	72	79	76	69	78	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57		
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	66	72	71	62	72	67	59	71	63	56	68	60	53	64	58	59	62	56	57
			Exposed	72	72	71	72	72	68	72	72	65	72	72	63	72	69	61	72	66	59	72	64	57	68	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	68	72	72	65	72	72	63	72	66	60	71	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	72	72	68	72	72	64	72	70	62	72	67	60	72	64	58	71	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	71	77	74	68	77	69	64	76	64	60	75	61	58	72	59	55	68	56	50	64	54	58
			Exposed	77	77	74	77	77	70	77	73	67	77	69	64	77	66	62	77	64	60	77	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	60	53	44
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	80	77	79	79	74	78	76	68	75	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	81	81	80	81	81	76	81	80	72	81	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
70	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	63	56	64	60	53	64	58	59
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	60	64	63	57
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	64	59	61	55	57
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	68	63	71	65	61
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	63	71	64	60	71	61	57	71	59	55	68	56	50
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	72	73	73	68	72	71	65
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	67	71	68	63	71	64	60	71	61	57	71	59	55	68	56	50
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	72	73	73	68	72	71	65
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	75	68	74	70	64	70	66	61	66	63	59	63	61	56
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
			Exposed	67	67	67	67	67	67	67	67	65	67	67	63	67	67	61	67	66	59	67	64	57	67	61	54	64	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	63	68	66	60	68	63	57	67	60	54	63	57	59	61	55	57	58	60	55
			Exposed	68	68	68	68	68	64	68	68	62	68	67	60	68	64	58	68	62	57	68	61	55	64	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	71	74	74	68	74	69	64	73	64	60	72	61	58	71	59	55	68	56	50	64	54	58
			Exposed	74	74	74	74	74	70	74	73	67	74	69	64	74	66	62	74	64	60	74	62	58	72	59	55	67	56	60	64	51	57	61	58	55	58	56	50	60	53	44
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	77	77	77	77	77	74	75	75	68	74	71	64	70	66	61	66	63	59	63	61	56	60	58	53
			Exposed	78	78	78	78	78	78	72	78	76	69	78	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53		
80	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	53	60	58	59
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	60	60	57	60	55	57
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	63	67	65	61
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	67	63	67	59	55
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	78*	77*	77*	77*	72	71	71	68	70	70	65
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	79*	72	79*	74	68	73	70	64	70	66	61	66	63	59	63	61	56
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	59	61
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	55	60	58	60	60	56	57	59	61	55	57	59	49
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	56
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	57	60	60	55	60	58	60	60	56	58
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	65	61	67	62	58	66	60	56
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	63	67	59	56	67	57	51	65	54	58	62	60	56	60	57	53
		27-45	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	77*	73	72	72	69	70	70	65	68	68	62	66	64	60	64	62	57
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	74	79*	79*	72	79*	74	69	78*	73	66	72	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	60	63	63	56	63	63	53	63	58	59	62	56	57
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	59	63	63	57	63	61	54	63	58	59	61	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	63	57	63	60	54	63	63	57	63	60	54	63	57	53
			Exposed	63	63	63	63	63	63	63	63	62	63	63	60	63	63	58	63	62	57	63	61	55	63	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	69	64	70	64	60	69	61	58	68	59	55	66	56	50	64	54	58
			Exposed	70	70	70	70	70	70	67	70	69	64	70	66	62	70	64	60	70	62	58	70	59	55	67	56	60	64	51	57	61	58	55	58	56	50	56	53	44		
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	75	75	75	74	74	73	73	68	72	71	64	70	66	61	66	63	59	63	61	56	60	58	53			
			Exposed	76	76	76	76	76	76	72	76	76	69	76	73	66	74	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53		

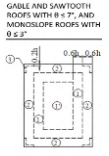
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

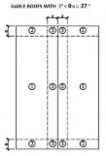
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

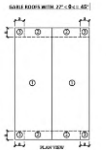
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

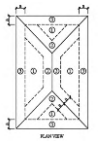












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	NXT	CROSS-SLOPE	NXT COMBO	Stronghold BUTYL Rafter #14S
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

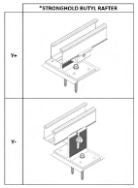
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	53	57	57	59			
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	53	57	57	59	57	55	57
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	57	63	59	55	63	56	50
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	73*	73*	72*	71*	71*	68	70*	70*	65
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	68	71*	70*	64	70*	66	61	66	63	59	63	61	56
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	61
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	56	57	57	61	55	57	59	49
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	57	57	60	57	56	58	
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	55	57	57	60	55	56	58	49	53	56	44
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	62	58	63	60	56	62	57	53
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	59	63	59	56	63	57	51	63	54	58	62	60	56	60	57	53			
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	65	71*	65	62	64	64	60	62	62	57
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	70*	68	62	67	64	59	63	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	56	60	60	53	60	58	59	60	56	57
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	57	60	60	54	60	58	59	60	55	56	58	60	53	56	58	47	53	56	41
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	54	60	57	59	59	55	57	58	60	55
			Exposed	60	60	60	60	60	60	60	60	60	60	60	58	60	60	57	60	60	55	60	57	60	60	54	57	58	60	53	55	57	47	50	55	41	58	49	37			
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	64	60	66	61	58	65	59	55	64	56	50	63	54	58
			Exposed	67	67	67	67	67	67	67	67	67	64	67	66	62	67	64	60	67	62	58	67	59	55	67	56	60	64	51	57	61	58	55	58	56	60	56	50	56	53	44
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	78*	78*	77*	77*	77*	72	78*	71	68	69	69	64	67	66	61	65	63	59	63	61	56	60	58	53
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	72	76*	76*	69	76*	73	66	73	70	64	71	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53
100	B	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	59	54	54	59
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	57			
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	59	55	60	56	50
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	64*	64*	64*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	67*	66*	61	66*	63*	59	63*	61	56
	C	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	61
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	61	55	54	59	49
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	54	58
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	54	54	57	54	60	55	54	58	49	53	56	44
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	56	60	57	53
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	59	56	60	57	51	60	54	58	60	60	56	60	57	53
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	67*	67*	66*	66*	66*	66*	65*	65*	65*	66*	66*	62	64*	64*	60	63*	61	57
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	67*	67*	62	66*	64*	59	63*	61	57	61	58	54	58	56	59	56	53	57
	D	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	53	57	57	59	57	56	57			
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	59	57	55	56	57	60	53	56	58	47	53	56	41
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	59	57	55	57	57	55	60			
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	60	57	54	57	57	60	53	55	57	47	50	55	41	58	49	37
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	61	58	62	59	55	61	56	50	60	54	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	58	63	59	55	63	56	60	63	51	57	61	58	55	58	56	59	56	53	44		
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	70*	70*	70*	72*	72*	69*	70*	70*	64	70*	65	61	63	63	59	62	61	56	60	58	53
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	69*	71*	71*	66	71*	70*	64	70*	68	62	66	63	59	62	60	56	60	57	51	57	55	58	55	60	56	60	58	53	

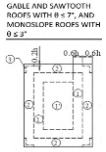
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

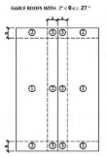
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

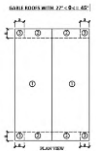
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

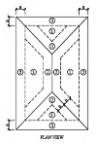












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4