SM Span Charts

Design Criteria for Span Tables:

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

Building Assumptions

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

Wind Design Assumptions

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

Snow Design Assumptions

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

Seismic Design Assumptions

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

Array Assumptions

- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1" x 67" (18.66 sq.ft, 47.65 lbs) and 41" x 80" (22.78 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at least twice the module height above roof surface.
- Modules are parallel to roof surface and maximum height above roof surface is 5" to 10" depending on attachment type.
- Gaps between module rows and columns is 0.25" in to 1" depending on clamp type.
- 'Exposed' spans as defined in ASCE 7-22 sec. 29.4.4 shall be used when any part of an exposed module or panel as is attributed to that span.
- The most restrictive of all roof zone spans shall be used when any part of the module is attributed to that span.

Design Tool Version

- Flush_Design Tool_240118.xlsm

UNIRAC

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

SPAN TABLES

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

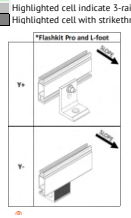
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	124	104	127	115	94	125	104	86	117	95	79	109	88	73	100	82	65
			Exposed	127	127	127	127	127	121	127	127	115	127	125	106	127	119	99	127	114	93	127	108	88	118	96	79	108	87	72	97	80	61	90	74	50	83	67	42	77	57	56
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	116	127	124	100	127	114	90	127	100	82	117	91	75	106	84	68	96	78	56
			Exposed	127	127	127	127	127	120	127	127	114	127	126	103	127	119	95	127	114	90	127	104	85	118	92	76	104	83	66	93	76	52	85	68	42	79	55	56	73	46	50
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	119	128	121	105	128	110	94	128	97	86	121	89	79	115	82	73			
			Exposed	128	128	128	128	128	128	128	128	128	128	128	121	128	126	114	128	120	104	128	114	97	128	98	86	120	88	78	111	80	71	99	73	57	92	64	46	85	52	40
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	127	129	128	117	129	119	105	126	110	95	117	99	87	106	92	81			
			Exposed	129	129	129	129	129	129	129	129	129	128	129	129	129	129	129	129	129	129	129	129	127	129	128	117	129	119	105	126	110	95	117	99	87	106	92	81			
	C	0-7	Interior	127	127	127	127	127	124	127	127	118	127	127	112	127	123	103	127	117	96	127	112	91	121	99	82	112	90	75	101	83	66	93	76	54	86	71	45	80	61	39
			Exposed	127	122	102	127	116	95	127	109	89	122	101	83	117	95	79	111	90	74	104	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	127	127	127	127	127	124	127	127	117	127	127	109	127	123	99	127	117	93	127	110	88	122	95	79	111	86	71	97	78	57	89	72	46	82	61	59	75	50	52
			Exposed	127	123	99	127	115	91	127	105	85	123	97	80	117	91	75	109	85	71	100	81	61	89	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	124	128	128	118	128	124	110	128	118	100	128	102	90	124	91	81	115	83	74	104	76	63	95	70	51	88	57	42
			Exposed	128	128	117	128	122	108	128	115	97	128	105	91	128	96	85	123	91	80	118	85	76	105	77	64	94	68	49	86	53	40	79	43	53	73	57	47	65	50	42
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	125	129	129	119	129	125	114	129	115	99	119	102	89	108	93	82	96	85	75	88	79	68	81	73	56
			Exposed	129	129	125	129	129	118	129	122	110	129	116	100	125	109	94	119	101	89	113	95	84	96	86	75	87	78	66	79	72	52	72	60	42	61	49	56	50	42	50
	D	0-7	Interior	127	127	120	127	127	114	127	123	104	127	118	97	127	112	91	125	105	86	120	98	81	110	89	74	98	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	127	112	91	124	103	85	118	96	79	112	90	75	104	85	70	97	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	127	127	120	127	127	112	127	124	100	127	117	93	127	110	88	127	100	82	121	94	78	107	85	69	94	77	53	86	69	42	79	55	56	72	45	49	62	59	44
			Exposed	127	109	87	125	98	81	118	92	76	110	86	71	100	81	61	94	76	52	88	72	45	79	56	56	72	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	128	128	128	128	128	126	128	128	119	128	124	111	128	118	100	128	110	94	128	101	89	122	90	79	113	81	72	100	74	58	92	64	46	85	51	39	79	42	53
			Exposed	128	117	100	128	108	93	128	98	86	123	91	81	118	85	76	112	80	71	104	76	62	92	65	47	84	50	58	77	41	51	71	54	44	59	47	39	50	42	35
		27-45	Interior	129	129	129	129	129	129	129	126	120	129	125	114	129	119	105	129	114	98	118	100	88	103	91	80	93	83	73	85	76	62	78	71	50	72	59	42			
			Exposed	129	124	114	129	118	103	126	111	95	119	102	89	113	95	84	102	90	79	95	85	75	85	77	63	77	69	49	70	56	40	55	46	53	45	59	47	59	53	42
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	117	119	119	104	119	115	94	119	104	86	117	95	79	109	88	73	100	82	65
			Exposed	119	119	119	119	119	119	119	119	119	119	119	106	119	119	99	119	114	93	119	108	88	118	96	79	108	87	72	97	80	61	90	74	50	83	67	42	77	57	56
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	116	119	119	100	119	114	90	119	100	82	117	91	75	106	84	68	96	78	56
			Exposed	119	119	119	119	119	119	119	119	114	119	119	103	119	119	95	119	114	90	119	104	85	118	92	76	104	83	66	93	76	52	85	68	42	79	55	56	73	46	50
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	119	124	121	105	124	110	94	124	97	86	121	89	79	115	82	73
			Exposed	124	124	124	124	124	124	124	124	124	124	124	121	124	124	114	124	120	104	124	114	97	124	98	86	120	88	78	111	80	71	99	73	57	92	64	46	85	52	40
		27-45	Interior	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	127	130*	127	117	130*	119	105	126	110	95	117	99	87	106	92	81
			Exposed	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	127	130*	130*	122	130*	127	116	130*	121	109	126	111	95	116	98	86	101	90	79	92	82	72	85	76	62	78	71	51
	C	0-7	Interior	119	119	119	119	119	119	119	119	118	119	119	112	119	119	103	119	117	96	119	112	91	119	99	82	112	90	75	101	83	66	93	76	54	86	71	45	80	61	39
			Exposed	119	119	102	119	116	95	119	109	89	119	101	83	117	95	79	111	90	74	104	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	119	119	119	119	119	119	119	119	117	119	119	109	119	119	99	119	117	93	119	110	88	119	95	79	111	86	71	97	78	57	89	72	46	82	61	59	75	50	52
			Exposed	119	119	99	119	115	91	119	105	85	119	97	80	117	91	75	109	85	71	100	81	61	89	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	119	124	121	105	124	110	94	124	97	86	121	89	79	115	82	73
			Exposed	124	124	117	124	122	108	124	115	97	124	105	91	124	96	85	123	91	80	118	85	76	105	77	64	94	68	49	86	53	40	79	43	53	73	57	47	65	50	42
		27-45	Interior	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	125	130*	130*	119	130*	125	114	130*	115	99	119	102	89	108	93	82	96	85	75	88	79	68	81	73	56
			Exposed	130*	130*	125	130*	129*	118	130*	122	110	130*	116	100	125	109	94	119	101	89	113	95	84	96	86	75	87	78	66	79	72	52	72	60	42	61	49	56	50	42	50
	D	0-7	Interior	119	119	119	119	119	114	119	119	104	119	118	97	119	112	91	119	105	86	119	98	81	110	89	74	98	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	119	112	91	119	103	85	118	96	79	112	90	75	104	85	70	97	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	119	119	119	119	119	112	119	119	100	119	117	93	119	110	88	119	100	82	119	94	78	107	85	69	94	77	53	86	69	42	79	55	56	72	45	49	62	59	44
			Exposed	119	109	87	119	98	81	118	92	76	110	86	71	100	81	61	94	76	52	88	72	45	79	56	56	72	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	126	126	126	126	126	126	126	126	119	126	124	111	126	118	100	126	110	94	126	101	89	122	90	79	113	81	72	100	74	58	92	64	46	85	51	39	79	42	53
			Exposed	126	117	100	126	108	93	126	98	86	123	91	81	118	85	76	105	80	71	104	76	62	92	65	47	84	50	58	77	41	51	71	54	44	59	47	39	50	42	35
		27-45	Interior	128	128	128	128	128	128	128	128	126	128	128	120	128	125	114	128	119	105	128	114	98	118	100	88	103	91	80	93	83	73	85	76	62	78	71	50	72	59	42
			Exposed	128	124	114	128	118	103	126	111	95	119	102	89	113	95	84	102	90	79	95	85	75	85	77	63	77	69	49	70	56	40	55	46	53	45	59	47	59	53	42
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	104	105	105	94	105	104	86	105	95	79	105	88	73	100	82	65
			Exposed	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	96	105	105	90	105	96	79	105	87	72	97	80	61	90	74	50
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	100	105	105	90	105	100	82	105	91	75	105	84	68	96	78	56
			Exposed	105	105	105	105	105	105	105	105	105	105	105	103	105	105	95	105	105	90	105	104	85	105	92	76	104	83	66	93	76	52	85	68	42	79	55	56	73	46	50
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	105*	115*	110*	94*	115*	97*	86	115*	89	79	115*	82	73
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	104*	115*	114*	97*	115*	98*	86	115*	88	78	111*	80	71	99*	73	57	92	64	46	85	52	40
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	105*	111*	110*	95*	111*	99*	87*	106*	92*	81
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	109*	111*	111*	95*	111*	98*	86*	101*	90*	79	92*	82	72	85*	76	62	78	71	51
	C	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	103	105	105	96	105	105	91	105	99	82	105	90	75	101	83	66	93	76	54	86	71	45	80	61	39			
			Exposed	105	105	102	105	105	95	105	105	89	105	101	83	105	95	79	105	90	74	104	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
			Exposed	105	105	99	105	105	91	105	105	85	105	97	80	105	91	75	105	85	71	100	81	61	89	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	110*	115*	115*	100*	115*	102*	90	115*	91	81	115*	83	74	104*	76	63	95*	70	51	88	57	42
			Exposed	115*	115*	115*	115*	115*	108*	115*	115*	97*	115*	105*	91	115*	96*	85	115*	91	80	115*	85	76	105*	77	64	94*	68	49	86	53	40	79	43	53	73	57	47	65	50	42
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	99*	111*	102*	89*	108*	93*	82	96*	85*	75	88*	79	68	81	73	56
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	110*	111*	111*	100*	111*	109*	94*	111*	101*	89*	111*	95*	84	96*	86*	75	87*	78	66	79	72	52	72	60	42	61	49	56	50	42	50
	D	0-7	Interior	105	105	105	105	105	105	105	105	104	105	105	97	105	105	91	105	105	86	105	98	81	105	89	74	98	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	105	105	91	105	103	85	105	96	79	105	90	75	104	85	70	97	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	105	105	105	105	105	105	105	105	100	105	105	93	105	105	88	105	100	82	105	94	78	105	85	69	94	77	53	86	69	42	79	55	56	72	45	49	62	59	44
			Exposed	105	105	87	105	98	81	105	92	76	105	86	71	100	81	61	94	76	52	88	72	45	79	56	56	72	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	111*	117*	117*	100	117*	110*	94	117*	101*	89	117*	90	79	113*	81	72	100	74	58	92	64	46	85	51	39	79	42	53
			Exposed	117*	117*	100	117*	108*	93	117*	98	86	117*	91	81	117*	85	76	112*	80	71	104*	76	62	92	65	47	84	50	58	77	41	51	71	54	44	59	47	39	50	42	35
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	105*	116*	114*	98*	116*	100*	88	103*	91*	80	93*	83	73	85	76	62	78	71	50	72	59	42
			Exposed	116*	116*	114*	116*	116*	103*	116*	111*	95*	116*	102*	89	113*	95*	84	102*	90	79	95*	85	75	85	77	63	77	69	49	70	56	40	55	46	53	45	59	47	59	53	42

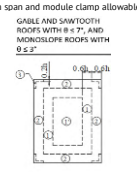
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

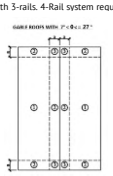
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

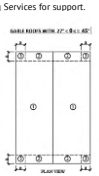
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

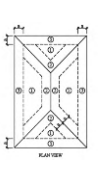












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

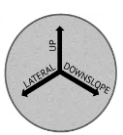
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

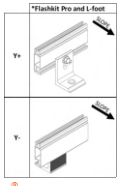
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	79	94	94	88	73	94	82	65
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	79	94	87	72	94	80	61	90	74	50	83	67	42	77	57	56
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	92*	76	95*	83*	66	93*	76	52	85*	68	42	79	55	56
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	95*	85*	95*	92*	76	95*	83*	66	93*	76	52	85*	68	42	79	55	56	73	46	50
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	78*	88*	80*	71*	88*	73*	57
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	78*	88*	80*	71*	88*	73*	57	88*	64	46	85*	52	40
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	79*	81*	81*	72*	81*	76*	62	78*	71*	51
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	82	94	90	75	94	83	66	93	76	54	86	71	45	80	61	39
			Exposed	94	94	94	94	94	94	94	89	94	94	83	94	94	79	94	90	74	94	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	93*	95*	95*	88*	95*	95*	79	95*	86*	71	95*	78	57	89*	72	46	82*	61	59	75	50	52
			Exposed	95*	95*	95*	95*	95*	91*	95*	95*	85*	95*	95*	80	95*	91*	75	95*	85*	71	95*	81	61	89*	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	36
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	81*	88*	83*	74*	88*	76*	63	88*	70*	51	88*	57	42
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	80*	88*	85*	76*	88*	77*	64	88*	68*	49	86*	53	40	79*	43	53	73*	57	47	65	50	42
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	75*	81*	81*	78*	66*	79*	72*	52	72*	60	42
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	75*	81*	81*	78*	66*	79*	72*	52	72*	60	42	61	49	56	50	42	50
	D	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	86	94	94	81	94	89	74	94	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	94	94	91	94	94	85	94	94	79	94	90	75	94	85	70	94	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	30
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	93*	95*	95*	95*	95*	95*	88*	95*	95*	78	95*	85	69	94*	77	53	86	69	42	79	55	56	72	45	49	62	59	44
			Exposed	95*	95*	87*	95*	95*	81	95*	92*	76	95*	86	71	95*	81	61	94*	76	52	88*	72	45	79	56	56	72	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	89*	96*	90*	79*	96*	81*	72	96*	74*	58	92*	64	46	85*	51	39	79*	42	53
			Exposed	96*	96*	96*	96*	96*	93*	96*	96*	86*	96*	91*	81*	96*	85*	76*	96*	80*	71	96*	76*	62	92*	65	47	84*	50	58	77*	41	51	71	54	44	59	47	33	50	42	35
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	80*	88*	83*	73*	85*	76*	62
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	79*	88*	85*	75*	85*	77*	63	77*	70*	49	70*	56	40	55	46	53	45	59	47	59	53	42
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	79	90	90	82	73	90	82	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	79	90	90	74	90	82	65	90	82	65
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	75*	83*	83*	68*	83*	78*	56	83*	78*	56
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	76*	83*	83*	66*	83*	76*	52	83*	68*	42
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57*	68*	64*	46	68*	52	40
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	51*
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	82	90	90	75	90	83	66	90	76	54	86	71	45	80	61	39
			Exposed	90	90	90	90	90	90	90	89	90	90	83	90	90	79	90	90	74	90	85	70	90	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	79*	83*	83*	71*	83*	78	57	83*	72*	46	82*	61	59	75*	50	52
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	80*	83*	83*	75*	83*	83*	71*	83*	81*	61	83*	72*	46	81*	59	58	73*	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*	68*	68*	51	68*	57*	42
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	49	68*	53*	40	68*	43	53	68*	57	47	65*	50	42
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	56*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	52*	64*	60*	42	61*	50*	56	50*	42	50
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	93	93	91	93	93	86	93	93	81	93	89	74	93	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	93	93	91	93	93	85	93	93	79	93	90	75	93	85	70	93	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	30
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	78*	92*	85*	69	92*	77*	53	86*	69	42	79*	55	56	72*	45	49	62	59	44
			Exposed	92*	92*	87*	92*	92*	81	92*	92*	76*	92*	86*	71	92*	81	61	92*	76*	52	88*	72*	45	79*	56	56	72*	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	58*	75*	64*	46	75*	51	39	75*	42	53
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	71*	75*	75*	62*	75*	65*	47	75*	50	58	75*	41	51	71*	54	44	59*	47	33	50	42	35
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	50	70*	59*	42
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	63*	70*	70*	49	70*	56*	40	56*	46	53	45	59	47	59	53	42
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	79	84	84	73	84	82	65	84	82	65
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	61	84	74	50	83	67	42	77	57	56
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	56*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	52	68*	68*	42	68*	55*	36
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	46*
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	84	84	83	66	84	76	54	84	71	45	80	61	39
			Exposed	84	84	84	84	84	84	84	84	84	84	83	84	84	79	84	84	74	84	84	70	84	77	55	84	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57*	68*	68*	46	68*	61*	59	68*	50	52
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	61*	68*	68*	46	68*	59*	58	68*	46	50	63*	59	44	51	52	39	42	47	35
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	51*	56*	56*	42
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	49*	56*	53*	40	56*	43	53	56*	57	47	56*	50	42
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	42*	53*	49*	56	50*	42*	50
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	81	87	87	74	87	81	62	87	74	51	83	67	42	77	56	56	72	48	50
			Exposed	87	87	87	87	87	85	87	87	79	87	87	75	87	85	70	87	80	61	87	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	30
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	75*	53	75*	69*	42	75*	55	56	72*	45	49	62*	59	44
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	71*	75*	75*	61*	75*	75*	52	75*	72*	45	75*	56	56	72*	44	48	58*	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	58*	62*	62*	46	62*	51*	39	62*	42	53
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	47	62*	50*	58	62*	41	51	62*	54	44	59*	47	33	50*	42	35
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	42
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49*	58*	56*	40	55*	46*	53	45*	59	47	59	53	42

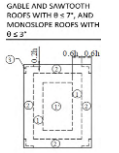
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

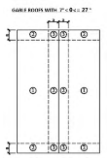
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

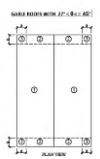
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

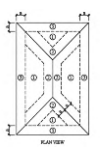












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

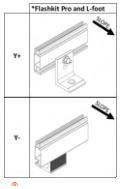
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

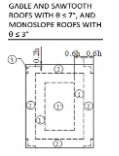
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

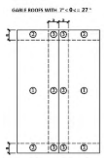
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

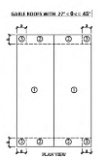
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

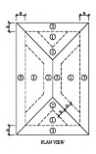












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

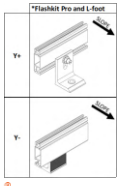
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

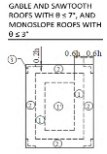
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

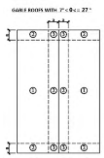
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

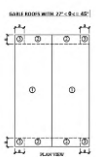
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

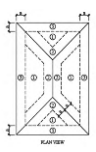












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

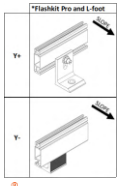
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	149	150	150	137	150	144	127	150	135	119	148	127	111	139	120	100	132	114	91
			Exposed	150	150	150	150	150	150	150	150	146	150	150	139	150	150	132	150	144	127	150	138	121	148	128	112	138	119	99	129	111	88	121	100	80	115	92	73	106	84	90
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	151	128	151	138	118	151	128	108	145	120	96	135	113	86
			Exposed	151	151	151	151	151	151	151	151	150	151	151	141	151	151	134	151	149	127	151	142	121	151	129	109	143	119	94	132	108	83	122	95	74	114	85	95	103	77	85
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	136	151	137	124	151	126	114	143	116	100	134	104	88	126	93	78	119	83	71
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	136	151	137	124	151	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	141	152	142	131	152	134	123	146	126	116	146	126	116	146	126	116
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	144	152	143	132	142	124	114	131	116	101	123	107	90	115	97	82	115	97	82
	C	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	143	150	150	136	150	147	130	150	141	125	150	131	115	142	122	103	132	115	92	124	105	83	118	95	76	111	88	68
			Exposed	150	150	136	150	146	128	150	139	122	150	132	116	147	126	110	141	121	102	135	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	151	131	151	146	125	151	133	114	148	122	99	136	114	87	126	100	78	118	90	68	108	81	89
			Exposed	151	151	138	151	151	129	151	143	122	151	135	116	151	128	107	147	122	98	139	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	142	128	151	130	118	147	120	105	137	110	92	129	97	82	122	87	74
			Exposed	151	151	151	151	151	147	151	151	137	151	144	130	151	136	123	151	129	117	151	123	110	138	112	93	128	96	81	120	84	72	112	75	91	101	96	82	92	86	74
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	147	136	152	136	125	147	127	117	136	119	106	126	112	95	118	101	86	118	101	86
			Exposed	152	152	152	152	152	152	152	152	145	152	149	137	152	142	130	152	135	124	151	130	119	137	120	107	125	110	93	116	98	83	103	88	74	91	80	94	81	73	85
	D	0-7	Interior	150	150	150	150	150	145	150	150	137	150	148	130	150	141	125	150	135	119	150	130	114	140	121	101	130	112	90	122	101	80	115	92	73	106	84	90	97	77	82
			Exposed	150	141	124	150	134	118	148	127	112	141	122	103	135	117	95	129	111	89	124	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	151	151	151	151	151	148	151	151	139	151	151	131	151	146	125	151	139	119	151	132	113	146	121	97	133	110	84	123	96	74	114	85	95	102	77	85	91	68	77
			Exposed	151	146	124	151	137	117	151	129	109	148	122	99	139	116	90	132	109	83	126	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	148	133	151	140	127	151	128	116	144	118	101	134	105	88	126	93	78	118	83	70	111	75	91
			Exposed	151	151	141	151	151	124	151	137	124	151	129	117	151	123	110	143	117	100	137	110	92	126	93	79	117	81	65	107	72	87	96	91	78	87	82	68	80	74	59
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	141	152	142	124	144	125	114	132	117	101	123	107	90	115	96	81	102	88	74
			Exposed	152	152	148	152	151	139	152	143	132	152	136	125	151	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	71	86	76	90	77	68	81	66	87	73
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	141	141	127	141	135	119	141	127	111	139	120	100	132	114	91
			Exposed	141	141	141	141	141	141	141	141	141	141	141	139	141	141	141	141	141	132	141	141	127	141	138	121	141	128	112	138	119	99	129	111	88	120	100	80	115	92	73
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	139	141	141	128	141	138	118	141	128	108	141	120	96	135	113	86
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	127	141	141	121	141	129	109	141	119	94	132	108	83	122	95	74	114	85	95	103	77	85
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	147	147	133	147	136	123	147	127	115	146	119	104
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	143	132	151	122	142	124	114	131	116	101	133	107	90	115	97	82
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	125	141	131	115	141	122	103	132	115	92	124	105	83	118	95	76	111	88	68
			Exposed	141	141	136	141	141	128	141	139	122	141	132	116	141	126	110	141	121	102	135	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	125	141	133	114	141	122	99	136	114	87	126	100	78	118	90	68	108	81	89
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	143	132	151	122	142	124	114	131	116	101	133	107	90	115	97	82
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	125	141	131	115	141	122	103	132	115	92	124	105	83	118	95	76	111	88	68
			Exposed	141	141	136	141	141	128	141	139	122	141	132	116	141	126	110	141	121	102	135	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	125	141	133	114	141	122	99	136	114	87	126	100	78	118	90	68	108	81	89
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	143	132	151	122	142	124	114	131	116	101	133	107	90	115	97	82
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	127	111	127	120	100	127	114	91
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	127	111	127	120	100	127	114	90
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	128	108	128	120	96	128	113	86
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	128	108	128	120	96	128	113	86
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	123	136	127	115	136	119	104
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	124	136	126	114	136	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	131	143*	134	123	143*	126	116
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	132	143*	133	122	143*	124	114	131	116	101	123	107	90	115	97	82
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	115	127	122	103	127	115	92	124	105	83	118	95	76	111	88	68
			Exposed	127	127	127	127	127	127	127	127	122	127	127	116	127	126	110	127	121	102	127	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	114	128	122	99	128	114	87	126	100	78	118	90	68	108	81	89
			Exposed	128	128	128	128	128	128	128	128	122	128	128	116	128	128	107	128	122	98	128	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	128	136	130	118	136	120	105	136	110	92	129	97	82	122	87	74
			Exposed	136	136	136	136	136	136	136	136	136	136	136	130	136	136	123	136	129	117	136	123	110	136	112	93	128	96	81	120	84	72	112	75	91	101	96	82	92	86	74
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	136	143*	136	125	143*	127	117	136	119	106	126	112	95	118	101	86
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	137	143*	142*	130	143*	135	124	143*	130	119	137	120	107	125	110	93	116	98	83	103	88	74	91	80	94	81	73	85
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	119	127	127	114	127	121	101	127	112	90	122	101	80	115	92	73	106	84	90	97	77	82
			Exposed	127	127	124	127	127	118	127	127	112	127	122	103	127	117	95	127	111	89	124	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	119	128	128	113	128	121	97	128	110	84	123	96	74	114	85	95	102	77	85	91	68	77
			Exposed	128	128	124	128	128	117	128	128	109	128	122	99	128	116	90	128	109	83	126	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	133	138	138	127	138	128	116	138	118	101	134	105	88	126	93	78	118	83	70	111	75	91
			Exposed	138	138	138	138	138	132	138	137	124	138	129	117	138	123	110	138	117	100	137	110	92	126	93	79	117	81	65	107	72	87	96	91	78	87	82	68	80	74	59
		27-45	Interior	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	141	149*	143	135	149*	134	124	142	125	114	132	117	101	123	107	90	115	96	81	102	88	74
			Exposed	149*	149*	149*	149*	149*	139	149*	143	132	149*	136	125	149*	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	71	86	76	90	77	68	81	66	87	73

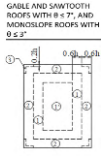
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

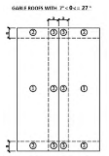
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

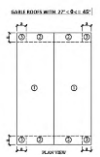
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

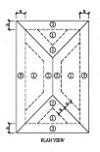












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

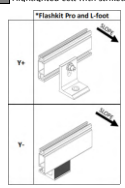
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	100	118	114	91
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	99	118	111	88	118	100	80	115	92	73	106	84	90
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	118	119	119	119	119	119	108	119	119	96	119	113	86
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	83	119	95	74	114	85	95	103	77	85
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	123*	128*	127*	115*	128*	119*	104						
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	124*	128*	128*	114*	128*	116*	100	128*	104	88	126*	93	78	119*	83	71
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	123*	124*	124*	124*						
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122*	124*	124*	114*	124*	116*	101	123*	107*	90	115*	97	82			
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	115	118	118	103	118	115	92	118	105	83	118	95	76	111	88	68
			Exposed	118	118	118	118	118	118	118	118	118	116	118	118	116	118	118	116	118	118	116	118	118	117	118	105	117	118	94	117	106	84	117	94	75	107	85	91	97	78	83
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	119	99	119	114	87	119	100	78	118	90	68	108	81	89
			Exposed	119	119	119	119	119	119	119	119	119	116	119	119	107	119	119	98	119	116	90	119	119	104	78	116	88	98	104	78	86	92	69	77	82	89	66	74	80	56	
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	118*	128*	120*	105	128*	110	92	128*	97	82	122*	87	74			
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	123*	128*	128*	117*	128*	123*	110	128*	112*	93	128*	96	81	120*	84	72	112*	75	91	101	96	82	92	86	74			
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	117*	124*	119*	106*	124*	112*	95	118*	101	86			
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119*	124*	120*	107*	124*	110*	93	116*	98	83	103*	88	74	91	80	94	81	73	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	112	90	118	101	80	115	92	73	106	84	90	97	77	82
			Exposed	118	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	113	119	119	97	119	110	84	119	96	74	114	85	95	102	77	85
			Exposed	119	119	119	119	119	117	119	119	109	119	119	99	119	116	90	119	109	83	119	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	127*	133*	128*	116	133*	105	88	126*	93	78	118	83	70	111	75	91			
			Exposed	133*	133*	133*	133*	133*	132*	133*	133*	124*	133*	129*	117	133*	123*	110	133*	117	100	133*	110	92	126*	93	79	117	81	65	107	72	87	96	91	78	87	82	68	80	74	59
		27-45	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	124*	129*	117*	101	123*	107	90	115*	96	81	102	88	74
			Exposed	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	125*	129*	129*	119*	129*	124*	114*	129*	119*	105	123*	108	91	114*	95	80	98	85	71	86	76	90	77	68	81	66	87	73
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	100	115	114	91			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	100	115	92	73	106	84	90
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	108*	118*	118*	96	118*	113*	86			
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	109*	118*	118*	94	118*	108*	83	118*	95	74	114*	85	95	103	77	85
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104*						
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	100*	114*	104*	88*	114*	93*	78	114*	83	71			
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*			
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	101*	107*	107*	90*	107*	97*	82*
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	103	115	115	92	115	105	83	115	95	76	111	88	68			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	95	115	115	84	115	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	99	118*	114*	87	118*	100	78	118*	90	68	108*	81	89
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107*	118*	118*	98	118*	116*	90	118*	101	78	117*	88	98	104	78	86	92	69	77	82	89	66	74	80	56			
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	105*	114*	114*	92*	114*	97*	82	114*	87*	74			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	112*	93*	114*	96*	81	114*	84	72	112*	75	91	101*	96	82	92*	86	74
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	95*	107*	101*	86*			
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	98*	83*	103*	88*	74	91*	80	94	82*	73	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	118	101	118	115	92	118	106	84	90	97	77	82		
			Exposed	118	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	113	121*	121*	97	121*	110	84	121*	96	74	114	85	95	102	77	85
			Exposed	121*	121*	121*	121*	121*	117*	121*	121*	109	121*	121*	99	121*	116	90	121*	109	83	121*	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	116*	119*	118*	101*	119*	105*	88	119*	93	78	118*	83	70	111*	75	91
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	117*	119*	119*	110*	119*	117*	100*	119*	110*	92	119*	93	79	117*	81	65	107*	72	87	96*	91	78	87	82	68	80	74	59		
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	101*	115*	107*	90*	115*	96*	81	102*	88	74			
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	105*	115*	108*	91*	113*	95*	80	98*	85	71	86	76	90	77	68	81	66	87	73
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	100	108	108	91			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	100	108	92	73	106	84	90
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	96*	110*	110*	86			
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	109*	110*	110*	94*	110*	108*	83	110*	95*	74	110*	85	95	103*	77	85
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	88*	94*	93*	78*	94*	83*	71
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*			
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	82*
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	103	108	108	92	108	105	83	108	95	76	108	88	68			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	102	108	108	95	108	105	84	108	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	87*	110*	110*	100*	78	109*	90*	68	108*	81	89
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	110*	110*	98*	110*	110*	90*	110*	101*	78	110*	88*	98	104*	78	86	92*	69	77	82	89	66	74	80	56	
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	82*	94*	87*	74*			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	81*	94*	94*	72*	94*	75*	91	94*	82	92*	86	74	
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*			
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	74*	88*	80*	94	81*	73*	85
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	101	112	112	90	112	101	80	112	92	73	106	84	90	97	77	82
			Exposed	112	112	112	112	112	112	112	112	112	112	112	103	112	112	95	112	111	89	112	104	83	112	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	113*	116*	116*	97*	116*	110*	84	116*	96*	74	114*	85	95	102*	77	85
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	116*	99*	116*	116*	90	116*	109*	83	116*	100*	77	115*	86	95	100*	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	101*	103*	103*	88*	103*	93*	78	103*	83*	70	103*	75	91
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	100*	103*	103*	92*	103*	93*	79	103*	81	65	103*	72	87	96*	91	78	87	82	68	80	74	59
		27-45	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*			
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	91*	97*	95*	80*	97*	85*	71	86*	77*	90	77*	68	81	66	87	73

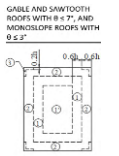
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

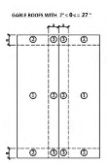
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

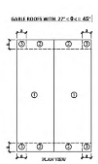
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

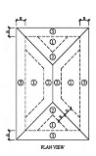












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

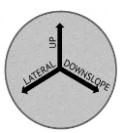
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

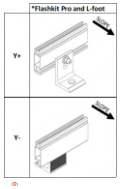
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	91
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	88	99	99	80	99	92	73	99	84	90
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	86*
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	83*	96*	95*	74*	96*	85*	95	96*	77*	85
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	79*	79*	71*
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	92	99	99	83	99	95	76	99	88	68
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	95	99	99	84	99	94	75	99	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	87*	96*	96*	78*	96*	90*	68	96*	81*	89
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	78*	96*	88*	98	96*	78*	86	92*	69	77	82*	89	66	74*	80	56
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	74*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	79*	75*	79	96*	82	79*	86	74
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	75*	75*	94	75*	73*	85
70	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	101	104	104	90	104	101	80	104	92	73	104	84	90	97	77	82
			Exposed	104	104	104	104	104	104	104	104	104	104	104	103	104	104	95	104	104	89	104	104	83	104	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	84*	106*	96*	74	106*	85*	95	102*	77	85	91*	68	77
			Exposed	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	99*	106*	106*	90*	106*	106*	83*	106*	100*	77	106*	86*	95	100*	76	83	88*	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	78*	87*	83*	70*	87*	75*	91
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	79*	87*	81*	65	87*	72*	87	87*	91	78	87*	82	68	80*	74	59
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*	82*	82*	74*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	80*	82*	82*	71*	82*	76*	90	77*	68*	81	67*	87	73
	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	83	92	92	73	92	84	91
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	80	92	92	73	92	84	90
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	74*	83*	83*	95	83*	77*	85
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	83	92	92	76	92	88	68
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	84	92	92	75	92	85	91	92	78	83	89	71	75	82	87	66
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	68*	83*	81*	88
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	78*	83*	83*	98*	83*	78*	86	83*	69*	77	82*	89	66	74*	80	56
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	91*	69*	96*	82*	69*	86*	74
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	90	97	97	80	97	97	80	97	92	73	97	84	82
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	95	97	97	89	97	97	83	97	92	73	97	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	84*	92*	92*	74*	92*	85*	95	92*	77*	85	91*	68	77
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	90*	92*	92*	83*	92*	92*	77*	92*	86*	95	92*	76*	83	88*	95	74	78*	85	69	70	76	55	90	66	49
		20-27	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	70*	76*	75*	91*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	91*	76*	82	68	76*	74	59
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	72*	72*	90*	72*	68*	81	66*	87*	73
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	80	87	87	73	87	84	90
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	95*	74*	74*	85*
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	87	76	87	87	68
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	75	87	85	91	87	78	83	87	71	75	82	87	66
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	68*	74*	74*	89*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	98*	74*	74*	86*	74*	69*	77	74*	89*	66	74*	80	56
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	91*	61*	92*	82*	61*	86*	74*
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90	91	91	80	91	91	73	91	84	90	91	77	82
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	83	91	91	73	91	83	89	91	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	74*	81*	81*	95*	81*	77*	85	81*	68*	77
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	77*	81*	81*	95*	81*	76*	83	81*	95*	74	78*	85	62	70*	76	55	90	66	49
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	91*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	91*	67*	82*	68	67*	74	59
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	90*	64*	64*	81*	64*	87*	74*

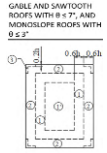
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

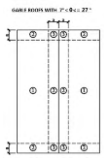
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

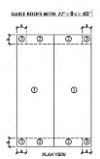
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

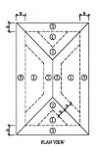












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

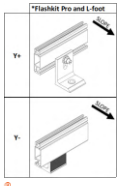
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	73	82	82	90		
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	95*	66*	66*	85*		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	82	68		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	75	82	82	91	82	78
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	98*	66*	66*	86*	66*	66*
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*	55*	55*
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	90	86	77	82	
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	73	86	83	89	86	75	80	85	91	72	78	83	62	72	77	55	
		7-20	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	95*	73*	73*	85*	73*	68*	77
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	95*	73*	73*	83	73*	95*	74	73*	85*	62	70*	76	55	90*	66	49
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	91*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	87*	60*	91*	78*	60*	82*	68	60*	74*	59		
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	86*	57*	57*	81*	57*	86*	73*		
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	90		
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	90*	60*	60*
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	68		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	91	78	78
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	90*	60*	60*	86*	60*	60*	77*	60*	89*	66	60*	80*	56
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	90	82	77	82		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	73	82	82	89	82	75	80	82	91	72	78	83	62	72	77	55	
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	95*	66*	66*	85*	66*	66*	77*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	95*	66*	66*	83*	66*	95*	74	66*	85*	69	66*	76*	55	90*	66	49
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*	55*	55*	55*	82*	78*	55*	82*	68	55*	74*	59
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	73*

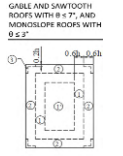
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

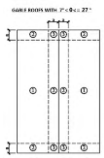
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

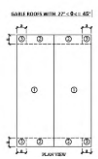
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

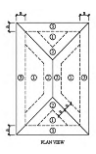












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

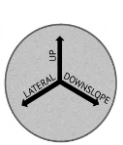
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

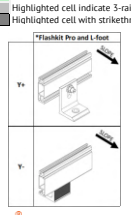
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	114	120	120	114	120	120	108	120	115	97	120	105	87	116	96	80	108	89	74	100	82	65	93	76	54
			Exposed	120	120	118	120	120	112	120	120	105	120	116	98	120	111	92	120	104	87	118	99	82	109	89	74	99	81	63	90	74	51	83	67	42	77	56	53	72	47	47
		7-20	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	118	120	120	113	120	120	106	120	115	94	120	104	85	116	94	77	107	86	71	98	79	57	90	73	47
			Exposed	120	120	117	120	120	111	120	120	103	120	116	96	120	110	90	120	103	84	118	97	79	108	86	71	97	78	55	88	71	43	80	57	53	74	46	47	65	57	42
		20-27	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	119	121	120	109	121	111	98	121	100	88	119	91	81	113	84	74	104	77	66			
			Exposed	121	121	121	121	121	121	121	121	117	121	121	111	121	116	103	121	110	97	121	103	91	120	92	81	111	83	73	101	75	61	93	67	48	86	53	58	80	43	50
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	116	121	118	107	121	110	97	115	100	89	107	93	82	98	86	76
			Exposed	121	121	121	121	121	121	121	121	121	121	121	118	121	121	113	121	117	106	121	113	100	116	101	89	105	92	81	95	84	74	87	77	64	80	71	52	74	60	43
	C	0-7	Interior	120	120	120	120	120	115	120	120	109	120	119	102	120	114	95	120	108	90	120	102	85	113	92	77	102	84	69	93	77	55	86	71	45	80	60	57	74	51	50
			Exposed	120	114	95	120	106	88	119	100	83	114	93	78	108	88	73	101	83	67	96	79	59	87	71	46	79	59	55	72	48	48	62	60	42	52	52	52	44	46	38
		7-20	Interior	120	120	120	120	120	115	120	120	107	120	119	99	120	114	93	120	107	87	120	100	82	112	90	74	101	81	61	91	74	48	83	63	57	77	51	49	71	42	44
			Exposed	120	114	93	120	105	86	119	97	80	114	91	75	107	85	70	100	80	60	94	76	51	84	64	58	76	49	48	66	58	42	52	50	37	42	44	38	53	38	28
		20-27	Interior	121	121	121	121	121	121	121	121	120	121	121	115	121	119	108	121	114	101	121	107	95	121	96	84	115	86	76	105	78	67	96	71	53	89	59	42	82	48	53
			Exposed	121	119	107	121	113	99	121	104	92	121	97	86	119	91	80	114	85	75	108	80	71	97	72	54	88	57	41	80	44	51	74	54	44	65	47	39	54	42	36
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	116	121	120	110	121	116	103	119	105	93	110	95	84	99	87	76	90	80	70	83	74	57	76	66	47
			Exposed	121	121	115	121	119	108	121	114	101	120	106	94	115	100	88	109	94	83	102	89	78	91	80	71	82	73	55	74	61	44	64	50	53	51	41	47	41	53	42
	D	0-7	Interior	120	120	111	120	120	103	120	115	96	120	109	90	120	102	85	116	96	80	112	91	76	100	82	66	91	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	120	102	85	115	95	79	109	89	74	102	84	68	96	79	59	91	75	51	86	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	120	120	110	120	120	101	120	115	94	120	107	88	120	100	82	116	94	77	111	89	73	99	79	58	89	72	45	81	58	53	74	46	47	64	57	41	52	49	37
			Exposed	120	100	82	115	93	76	108	86	71	100	80	60	94	76	51	88	71	44	83	62	57	74	47	47	62	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	121	121	121	121	121	116	121	120	109	121	114	101	121	107	94	121	101	89	121	95	83	113	84	75	102	76	63	93	68	49	86	53	58	79	43	50	74	53	44
			Exposed	121	107	94	121	99	87	119	92	81	114	86	76	108	80	71	102	76	61	96	71	52	86	54	59	78	42	49	72	51	42	60	45	37	49	39	33	41	35	29
		27-45	Interior	121	121	121	121	121	121	121	121	116	121	120	110	121	115	103	121	110	97	118	104	92	107	93	82	96	85	75	87	77	65	80	71	52	73	60	42	63	50	53
			Exposed	121	115	103	121	108	96	116	101	89	109	95	83	102	89	78	95	84	74	90	79	69	80	72	53	72	58	41	59	46	51	46	57	45	56	49	39	49	44	35
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	108	111	111	97	111	96	80	108	89	74	100	82	65	93	76	54			
			Exposed	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	106	112	112	94	112	104	85	112	94	77	107	86	71	98	79	57	90	73	47
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	106	112	112	94	112	104	85	112	94	77	107	86	71	98	79	57	90	73	47
			Exposed	112	112	112	112	112	111	112	112	103	112	112	96	112	110	90	112	103	84	112	97	79	108	86	71	97	78	55	88	71	43	80	57	53	74	46	47	65	57	42
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	111	98	117	100	88	117	91	81	113	84	74	104	77	66
			Exposed	117	117	117	117	117	117	117	117	117	117	117	111	117	116	103	117	110	97	117	103	91	117	92	81	111	83	73	101	75	61	93	67	48	86	53	58	80	43	50
		27-45	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	116*	120*	118*	107	120*	110*	97	115*	100	89	107	93	82	98	86	76
			Exposed	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	118*	120*	120*	113*	120*	117*	106	120*	113*	100	116*	101	89	105	92	81	95	84	74	87	77	64	80	71	52	74	60	43
	C	0-7	Interior	111	111	111	111	111	111	111	111	109	111	111	102	111	111	95	111	108	90	111	102	85	111	92	77	102	84	69	93	77	55	86	71	45	80	60	57	74	51	50
			Exposed	111	111	95	111	106	88	111	100	83	111	93	78	108	88	73	101	83	67	96	79	59	87	71	46	79	59	55	72	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	112	112	112	112	112	112	112	112	107	112	112	99	112	112	93	112	107	87	112	100	82	112	90	74	101	81	61	91	74	48	83	63	57	77	51	49	71	42	44
			Exposed	112	112	93	112	105	86	112	97	80	112	91	75	107	85	70	100	80	60	94	76	51	84	64	58	76	49	48	66	58	42	52	50	37	42	44	33	53	39	29
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	115	117	117	108	117	114	101	117	107	95	117	96	84	115	86	76	105	78	67	96	71	53	89	59	42	82	48	53
			Exposed	117	117	107	117	113	99	117	104	92	117	97	86	117	91	80	114	85	75	108	80	71	97	72	54	88	57	41	80	44	51	74	54	44	65	47	39	54	42	35
		27-45	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	116*	120*	120*	110*	120*	120*	110*	120*	116*	103	119*	105	93	110*	95	84	99	87	76	90	80	70	83	74	57	76	66	47
			Exposed	120*	120*	115*	120*	119*	109*	120*	114*	101	120*	106	94	115*	100	88	109*	94	83	102	89	78	91	80	71	82	73	55	74	61	44	64	50	53	51	41	47	41	53	42
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	97	111	96	80	108	89	74	100	82	65	93	76	54			
			Exposed	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	97	111	96	80	108	89	74	100	82	65	93	76	54			
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	94	112	104	85	112	94	77	107	86	71	98	79	57	90	73	47
			Exposed	112	112	112	112	112	111	112	112	103	112	112	96	112	110	90	112	103	84	112	97	79	108	86	71	97	78	55	88	71	43	80	57	53	74	46	47	65	57	42
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	111	98	117	100	88	117	91	81	113	84	74	104	77	66
			Exposed	117	117	117	117	117	117	117	117	117	117	117	111	117	116	103	117	110	97	117	103	91	117	92	81	111	83	73	101	75	61	93	67	48	86	53	58	80	43	50
		27-45	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	116*	120*	118*	107	120*	110*	97	115*	100	89	107	93	82	98	86	76
			Exposed	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	118*	120*	120*	113*	120*	117*	106	120*	113*	100	116*	101	89	105	92	81	95	84	74	87	77	64	80	71	52	74	60	43
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	87	96	96	80	96	89	74	96	82	65	93	76	54			
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	92	96	96	82	96	89	74	96	81	63	90	74	51	83	67	42	77	56	53	72	47	47
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	94	103*	103*	85	103*	94	77	103*	86	71	98*	79	57	90	73	47
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96	103*	103*	90	103*	103*	84	103*	97*	79	103*	86	71	97*	78	55	88	71	43	80	57	53	74	46	47	65	57	42
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	98*	102*	102*	91*	81*	102*	84*	74	102*	77	66			
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	97*	102*	102*	91*	102*	92*	81*	102*	83*	73	101*	75	61	93*	67	48	86*	53	58	80*	43	50
		27-45	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	89*	93*	93*	82*	93*	86*	76*
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	89*	93*	92*	81*	93*	84*	74*	87*	77*	64	80*	71*	52	74*	60	43
	C	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	95	96	96	90	96	96	85	96	92	77	96	84	69	93	77	55	86	71	45	80	60	57	74	51	50
			Exposed	96	96	95	96	96	88	96	96	83	96	93	78	96	88	73	96	83	67	96	79	59	87	71	46	79	59	55	72	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	99*	103*	103*	93	103*	103*	87	103*	100*	82	103*	90	74	101*	81	61	91	74	48	83	63	57	77	51	49	71	42	44
			Exposed	103*	103*	93	103*	103*	86	103*	97*	80	103*	91	75	103*	85	70	100*	80	60	94	76	51	84	64	58	76	49	48	66	58	42	52	50	37	42	44	33	53	39	29
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	95*	102*	96*	84*	102*	86*	76	102*	78*	67	96*	71	53	89*	59	42	82*	48	53
			Exposed	102*	102*	102*	102*	102*	99*	102*	102*	92*	102*	97*	86*	102*	91*	80*	102*	85*	75	102*	80*	71	97*	72	54	88*	57	41	80*	44	51	74	54	44	65	47	39	54	42	35
		27-45	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	84*	93*	87*	76*	90*	80*	70	83*	74*	57	76*	66	47
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	88*	93*	93*	83*	93*	89*	78*	91*	80*	71*	82*	73*	55	74*	61	44	64	50	53	51	41	47	41	53	42
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	90	96	96	85	96	96	80	96	91	76	96	82	66	91	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	96	96	85	96	96	79	96	89	74	96	84	68	96	79	59	91	75	51	86	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	106*	106*	106*	106*	106*	96	106*	106*	94	106*	106*	88	106*	96	82	106*	94	77	106*	89	73	96	79	58	89	72	45	81	58	53	74	46	47	64	57	41	52	49	37
			Exposed	106*	96	82	106*	93	76	106*	86	71	96	80	60	94	76	51	88	71	44	83	62	57	74	47	47	62	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	101*	108*	107*	94*	108*	101*	89*	108*	95*	83	108*	84	75	102*	76	63	93*	68	49	86*	53	58	79	43	50	74	53	44
			Exposed	108*	107*	94*	108*	99*	87*	108*	92*	81	108*	86*	76	108*	80	71	102*	76	61	96*	71	52	86*	54	59	78	42	49	72	51	42	60	45	37	49	39	33	41	35	29
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	97*	100*	100*	92*	100*	93*	82*	96*	85*	75	87*	77*	65	80*	71	52	73	60	42	63	50	53
			Exposed	100*	100*	100*	100*	100*	96*	100*	100*	89*	100*	95*	83*	100*	89*	79*	95*	84*	74	90*	79*	69	80*	72	53	72	58	41	59	46	51	46	57	45	56	49	39	49	44	35

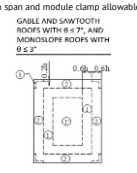
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

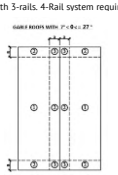
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

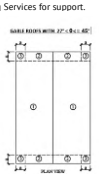
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

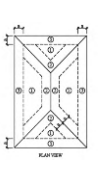












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

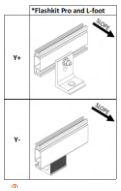
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	74	86	86	82	65	86	76	54
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	74	86	81	63	86	74	51	83	67	42	77	56	53	72	47	47
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	86*	71*	87*	79*	57	87*	73*	47			
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	87*	87*	79*	87*	86*	71*	87*	78*	55	87*	71*	43	80*	57	53	74*	46	47	65	57	42
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	66*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	56	73*	43	50
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	52	68*	60*	43
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	77	86	84	69	86	77	55	86	71	45	80	60	57	74	51	50
			Exposed	86	86	86	86	86	86	86	83	86	86	78	86	86	86	86	86	83	67	86	79	59	86	71	46	79	59	55	72	48	48	62	60	42	52	52	52	44	46	38
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	74*	87*	81*	61	87*	74*	48	83*	63	57	77*	51	49	71*	42	44
			Exposed	87*	87*	87*	87*	87*	86*	87*	87*	80*	87*	87*	75*	87*	85*	70*	87*	80*	60	87*	76*	51	84*	64	58	76*	49	48	66	58	42	52	50	37	42	44	38	53	38	29
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	67*	73*	71*	53	73*	59*	42	73*	48	53			
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	71*	73*	72*	54	73*	57*	41	73*	44	51	73*	54	44	65*	47	38	54	42	36
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	61*	44	64*	50	53	51	41	47	41	53	42
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	52	68*	60*	43
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	80	86	86	76	86	82	66	86	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	86	86	85	86	86	79	86	86	74	86	84	68	86	79	59	86	75	51	86	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	87*	87*	87*	87*	87*	87*	73*	87*	79*	58	87*	73*	45	81*	58	53	74*	46	47	64	57	41
			Exposed	87*	87*	82*	87*	87*	76*	87*	86*	71	87*	80*	60	87*	76*	51	87*	71	44	83*	62	57	74*	47	47	62	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	75*	80*	76*	63*	80*	68*	49	80*	53	58	79*	43	50	74*	53	44
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	76*	80*	80*	71*	80*	76*	61	80*	71*	52	80*	54	59	78*	42	49	72*	51	42	60	45	37	49	39	33	41	35	29
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	65*	74*	71*	52	73*	60*	42	63*	50	53
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*	74*	72*	53	72*	58*	41	59*	46	51	46	57	45	56	49	39	49	44	35
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	80	83	83	82	83	83	74	83	83	65	83	76	54			
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	74	83	81	63	83	74	51	67	42	77	56	53	72	47	47	
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	57*	70*	70*	57*			
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	43	70*	57*	53	70*	46	47	65*	57	42
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*			
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	48*	57*	53*	58*	47	43	50	
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	52*	54*	54*	54*	43*
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	77	83	83	69	83	77	55	83	71	45	80	60	57	74	51	50
			Exposed	83	83	83	83	83	83	83	83	83	83	83	78	83	83	73	83	83	67	83	79	59	83	71	46	79	59	55	72	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	49	70*	63*	57	70*	51	49	70*	42	44
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	60*	70*	70*	51	70*	64*	58	70*	49	48	66*	58	42	52	50	37	42	44	33	53	39	29
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	53*	57*	57*	42	57*	48*	53			
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	57*	41	57*	44*	51	57*	54	44	57*	47	39	54*	42	35			
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	44*	54*	50*	53	51*	42*	47	42*	53	42			
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	80	85	85	76	85	82	66	85	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	85	85	85	85	85	79	85	85	74	85	84	68	85	79	59	85	75	51	85	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	73*	77*	77*	58	77*	72*	45	77*	58	53	74*	46	47	64*	57	41	52	49	37
			Exposed	77*	77*	77*	77*	77*	76*	77*	77*	71*	77*	77*	60*	77*	76*	51	77*	71*	44	77*	62*	57	74*	47	47	62*	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	49*	63*	53*	58	63*	43	50	63*	53	44
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	52	63*	54*	59	63*	42	49	63*	51	42	60*	45	37	49	39	33	41	35	29
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	52*	59*	59*	42	59*	50*	53			
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	53*	59*	58*	41	59*	47*	51	46*	57	45	56	49	39	49	44	35
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	65	77	76	54			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	63	77	74	51	77	67	42	77	56	53	72	47	47
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*			
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	43	57*	57*	53	57*	46*	47	57*	57	42
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*			
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	58*	47*	43*	50
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	45	77	69	77	55	77	74	51	50
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	77	77	67	77	77	59	77	71	46	77	59	55	72	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	48*	57*	57*	57	57*	51*	49	57*	42	44
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	51*	57*	57*	58	57*	49*	48	57*	58	42	52*	50	37	42	44	33	53	39	29
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	53
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	44*	51	47*	54	44	47*	47*	39	47*	42	35
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	76	80	80	66	80	75	52	80	67	42	77	56	53	71	47	47	62	60	41
			Exposed	80	80	80	80	80	79	80	80	74	80	80	68	80	79	59	80	75	51	80	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	58*	63*	63*	45	63*	58*	53	63*	46	47	63*	57	41	52*	49	37
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	51*	63*	63*	44	63*	62*	57	63*	47	47	62*	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	52*	58	52*	43*	50	52*	53	44
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	59	52*	52*	42	52*	51	42	52*	45	37	49*	39	33	41*	36	29
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	42*	49*	49*	53
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41*	49*	46*	51	46*	57*	45	57*	49	39	49	44	36

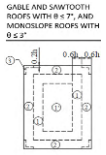
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

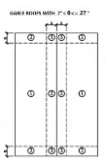
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

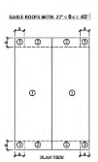
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

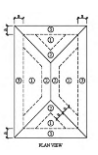












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

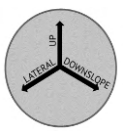
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

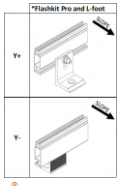
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	54
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	51	70	67	42
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	48*	53
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70	70	55	70	70	45	70	60	57	70	51	50
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	59	70	70	46	70	59	55	70	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	57*	48*	48*	49	48*	42*	44
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	58*	48*	48*	48	48*	58*	42	48*	50	37	42*	44	33	53	39	29
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	53*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	47*	39	35
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	47*	39	42
	D	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	66	74	74	52	74	67	42	74	56	53	71	47	47	62	60	41
			Exposed	74	74	74	74	74	74	74	74	74	74	74	68	74	74	59	74	74	51	74	71	45	74	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	41	52*	49	37
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	44*	53*	53*	57	53*	47*	47	53*	55	41	48*	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	58*	44*	43*	50	44*	53*	44	41*	41*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	59*	44*	42*	49	44*	51*	42	44*	45	37	44*	39	33	41*	35	29
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	53*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	51*	41*	57*	45	56*	50*	39	49*	44	35
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	54
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	51
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	53*	42*	42*
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	52*	35*	35*
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	55	65	65	45	65	60	57	65	51	50
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	46	65	59	55	65	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	44
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	58*	42*	42*	48	42*	58*	42	42*	50*	37	42*	44	33	53*	39	29
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	52*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	51*	35*	52*	44*	35*	47*	39	35*	42*	35*	35
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	54
			Exposed	69	69	69	69	69	69	69	69	69	69	69	68	69	69	59	69	69	51	69	69	45	69	57	53	69	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	53	46*	46*	47	46*	46*	41	46*	49	37
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	57*	46*	46*	47	46*	55*	41	46*	58*	41	46*	50	37	44	32	24
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	57*	38*	38*	50*	38*	53*	44*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	49*	38*	51*	42	38*	45*	37	38*	49	35
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	53*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	51*	36*	54*	45*	54*	49*	39	49*	44*	35
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	53*	37*	37*	47*	37*	55*	42
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	55	61	61	45	61	60	57	61	51	50
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	46	61	59	55	61	48	48	61	60	42	52	52	37	44	46	33
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	55*	37*	37*	49*	37*	37*	44*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	55*	37*	37*	48*	37*	55*	42	37*	50*	37	37*	44*	33	53*	39	29
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	52	65	65	42	65	56	53	65	47	47	62	60	41
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	51	65	65	45	65	57	53	65	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	53*	41*	41*	47*	41*	57*	41	41*	49*	37
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	57*	41*	41*	47*	41*	55*	41	41*	47*	35	58*	41	31	50*	37	27	44	32	24
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	51*	34*	34*	50*	34*	51*	44*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	51*	34*	34*	49*	34*	51*	42	34*	45*	37	34*	39*	33	34*	45*	29
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	48*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	48*	32*	48*	45*	48*	48*	39*	48*	44*	36

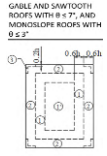
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

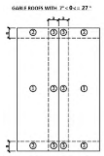
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

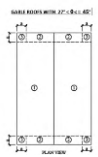
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

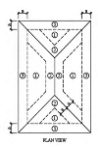












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

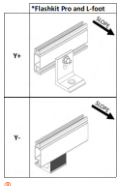
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	42	58	56	53	58	47	47
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	47*	33*	50*	42*
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	45	58	58	57	58	51	50
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	46	58	58	55	58	48	48	58	60	42
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	49*	33*	33*	44*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	48*	33*	50*	42*
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	52	61	61	42	61	56	53	61	61	47	61	60	41
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	61	45	61	57	53	61	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	53*	36*	36*	36*	36*	36*	47*	36*	49*	37
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	55*	36*	36*	47*	36*	55*	41	36*	47*	35	55*	41	31	50*	37	27	44*	32	24
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	37*	45*	40*	33	45*	35*	29
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	35*
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	42	55	55	53	55	47	47
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	55	55	57	55	51	50
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	46	55	55	55	55	48	48	55	60	42
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	37*	45*	44*	33	45*	39*	29
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	42	58	58	53	58	58	47	58	60	41
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	45	58	57	53	58	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	47*	33*	33*	50*	33*	41*	37
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	47*	33*	50*	41*	33*	47*	35	50*	41	31	50*	37	27	44*	32	24
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*

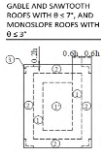
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

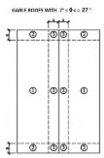
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

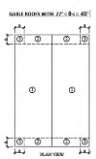
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

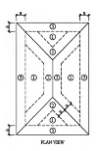












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

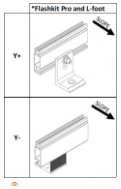
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	148	149	149	136	149	143	126	149	134	118	146	126	109	138	119	98	130	113	90
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	131	149	142	125	149	136	120	147	126	110	137	118	97	128	109	87	120	99	79	114	90	97	104	83	89
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	138	149	149	126	149	137	117	149	127	106	143	119	94	133	110	84
			Exposed	149	149	149	149	149	149	149	149	148	149	149	140	149	149	132	149	148	126	149	140	120	149	128	107	141	118	92	130	106	81	121	94	73	113	84	93	101	76	84
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	143	150	146	131	150	135	122	150	126	114	145	118	102
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	150	135	150	136	123	150	124	113	142	115	97	132	102	86	125	91	77	118	82	100
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	141	130	151	132	122	144	125	115
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	151	130	151	131	121	141	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	135	149	146	129	149	140	123	149	130	114	140	121	101	131	114	91	123	103	82	117	94	75	109	86	93
			Exposed	149	149	134	149	144	127	149	137	121	149	131	115	146	125	108	139	120	100	134	116	94	124	104	82	116	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	149	149	149	149	149	149	149	149	149	144	149	149	136	149	149	129	149	145	123	149	132	113	146	121	97	134	112	85	125	98	76	116	88	97	106	79	88		
			Exposed	149	149	136	149	149	128	149	141	121	149	133	114	149	126	105	145	120	96	138	115	89	125	99	77	115	87	96	102	77	84	90	97	76	80	87	64	73	79	57
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	139	150	140	126	150	128	116	146	119	103	136	108	90	128	95	81	121	86	73
			Exposed	150	150	150	150	150	145	150	150	136	150	142	128	150	134	121	150	127	116	149	121	107	137	109	91	127	94	79	118	82	101	110	73	89	99	94	80	90	85	72
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	146	134	151	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	151	151	151	151	151	151	151	151	143	151	147	136	151	140	129	151	134	123	149	128	118	135	119	105	124	108	91	114	96	81	100	86	73	89	78	92	80	98	83
	D	0-7	Interior	149	149	149	149	149	143	149	149	136	149	147	129	149	140	123	149	134	118	149	129	113	138	119	99	129	111	88	121	99	79	114	90	97	104	83	88	95	76	81
			Exposed	149	140	123	149	132	117	147	126	110	140	121	101	134	116	94	128	109	87	123	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	149	149	149	149	149	147	149	149	138	149	149	130	149	145	123	149	145	123	149	130	111	144	119	95	131	108	83	121	94	73	113	84	93	100	75	83	89	97	75
			Exposed	149	144	123	149	135	116	149	127	106	146	121	97	138	115	89	130	106	82	124	98	76	114	85	94	98	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	148	150	150	139	150	146	132	150	139	125	150	126	115	143	116	99	133	103	86	125	91	77	117	81	99	109	73	89
			Exposed	150	150	139	150	144	130	150	135	122	150	128	116	149	121	107	142	115	98	136	107	90	125	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	139	151	145	133	151	133	122	142	123	113	130	115	99	121	105	89	113	94	80	100	86	73
			Exposed	151	151	146	151	149	138	151	141	130	151	134	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	79	96	83	98	85	75	88	76	94	79	99	85	72
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	136	139	139	126	139	134	118	139	126	109	138	119	98	130	113	90
			Exposed	139	139	139	139	139	139	139	139	139	139	139	137	139	139	131	139	139	125	139	136	120	139	126	110	137	118	97	128	109	87	120	99	79	114	90	97	104	83	89
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	138	140	140	126	140	137	117	140	127	106	140	119	94	133	110	84
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	132	140	140	126	140	140	120	140	128	107	140	128	107	130	106	81	121	94	73	113	84	93	101	76	84
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	131	146	135	122	146	126	114	145	118	102
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	142	146	146	135	146	136	123	146	124	113	142	115	97	132	102	86	125	91	77	118	82	100
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	139	150	141	130	150	132	122	144	125	115
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	142	130	150	131	121	141	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	135	139	139	129	139	139	123	139	130	114	139	121	101	131	114	91	123	103	82	117	94	75	109	86	93
			Exposed	139	139	134	139	139	127	139	137	121	139	131	115	139	125	108	139	120	100	134	116	94	124	104	82	116	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	140	129	140	140	123	140	132	113	140	121	97	134	112	85	125	98	76	116	88	97	106	79	88
			Exposed	140	140	136	140	140	128	140	140	121	140	133	114	140	126	105	140	120	96	138	115	89	125	99	77	115	87	96	102	77	84	90	97	76	80	87	64	73	79	57
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	142	146	146	139	146	140	126	146	126	116	146	119	103	136	108	90	128	95	81	121	86	73
			Exposed	146	146	146	146	146	145	146	146	136	146	142	128	146	134	121	146	127	116	146	121	107	137	109	91	127	94	79	118	82	101	110	73	89	99	94	80	90	85	72
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	146	134	150	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	150	150	150	150	150	150	150	150	143	150	147	136	150	140	129	150	134	123	149	128	118	135	119	105	124	108	91	114	96	81	100	86	73	89	78	92	80	98	83
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	129	139	139	123	139	134	118	139	129	113	138	119	99	129	111	88	121	99	79	114	90	97	104	83	88	95	76	81
			Exposed	139	139	123	139	132	117	139	126	110	139	121	101	134	116	94	128	109	87	123	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	140	140	140	140	140	140	140	140	138	140	140	130	140	140	130	140	140	123	140	137	117	140	130	111	140	119	95	131	108	83	121	94	73	113	84	93	100	75	83
			Exposed	140	140	123	140	135	116	140	127	106	140	121	97	138	115	89	130	106	82	124	98	76	114	85	94	98	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	139	147	146	132	147	139	125	147	126	115	143	116	99	133	103	86	125	91	77	117	81	99	109	73	89
			Exposed	147	147	139	147	144	130	147	135	122	147	128	116	147	121	107	142	115	98	136	107	90	125	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	139	151	145	133	151	133	122	142	123	113	130	115	99	121	105	89	113	94	80	100	86	73
			Exposed	151	151	146	151	149	138	151	141	130	151	134	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	79	96	83	98	85	75	88	76	94	79	99	85	72
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	118	126	126	109	126	119	98	126	113	90
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	120	126	126	110	126	118	97	126	109	87	120	99	79	114	90	97	104	83	89
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	117	127	127	106	127	119	94	127	110	84
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	120	127	127	107	127	118	92	127	106	81	121	94	73	113	84	93	101	76	84
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	122	135	126	114	135	118	102
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	123	135	124	113	135	115	97	132	102	86	125	91	77	118	82	100
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	130	142*	132	122	142*	125	115
			Exposed	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	130	142*	131	121	141*	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	114	126	126	114	126	121	101	126	114	91	123	103	82	117	94	75	109	86	93
			Exposed	126	126	126	126	126	126	126	126	121	126	126	115	126	125	108	126	120	100	126	116	94	124	104	82	116	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	113	127	127	113	127	127	97	127	112	85	125	98	76	116	88	97	106	79	88
			Exposed	127	127	127	127	127	127	127	127	121	127	127	114	127	126	105	127	120	96	127	115	89	125	99	77	115	87	96	102	77	84	90	97	76	80	87	64	73	79	57
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	126	135	128	116	135	119	103	135	108	90	128	95	81	121	86	73
			Exposed	135	135	135	135	135	135	135	135	135	135	135	134	121	135	127	116	135	121	107	135	109	91	127	94	79	118	82	101	110	73	89	99	94	80	90	85	72		
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	134	142*	135	124	142*	126	115	134	118	104	125	110	93	117	99	84
			Exposed	142*	142*	142*	142*	142*	142*	142*	142*	142*	136*	142*	142*	140*	129	142*	134	123	142*	128	118	136*	119	105	124	108	91	114	96	81	100	86	73	89	78	92	80	98	83	
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	118	126	126	113	126	119	99	126	111	88	121	99	79	114	90	97	104	83	88	95	76	81
			Exposed	126	126	123	126	126	117	126	126	110	126	121	101	126	116	94	126	109	87	123	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	117	127	127	111	127	119	95	127	108	83	121	94	73	113	84	93	100	75	83	89	97	75
			Exposed	127	127	123	127	127	116	127	127	106	127	121	97	127	115	89	127	106	82	124	98	76	114	85	94	98	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	132	137	137	125	137	126	115	137	116	99	133	103	86	125	91	77	117	81	99	109	73	89
			Exposed	137	137	137	137	137	130	137	135	122	137	128	116	137	121	107	137	115	98	136	107	90	125	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57
		27-45	Interior	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	139	146*	142	133	146*	133	122	141	123	113	130	115	99	121	105	89	113	94	80	100	86	73
			Exposed	146*	146*	146*	146*	146*	138	146*	141	130	146*	134	124	146*	128	118	141	123	112	134	118	103	122	106	89	111	93	79	96	83	98	85	75	88	76	94	79	99	85	72

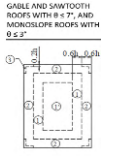
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

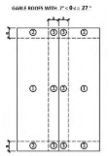
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

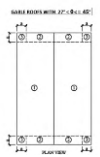
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

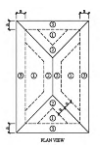












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

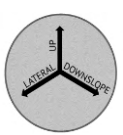
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

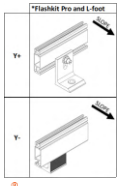
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	98	117	113	90			
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	87	117	99	79	114	90	97	104	83	89
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	106	118	118	94	118	110	84	
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	81	118	94	73	113	84	93	101	76	84
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	122*	127*	126*	114*	127*	118*	102			
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	123*	127*	127*	124*	113*	127*	115*	97	127*	102	86	125*	91	77	118*	82	100
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115*
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	111*	122*	115*	99	121*	105*	89	114*	95	80
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	114	117	117	101	117	114	91	117	103	82	117	94	75	109	86	93
			Exposed	117	117	117	117	117	117	117	117	117	115	117	117	108	117	117	100	117	116	94	117	104	82	116	93	74	105	84	90	96	76	81	87	93	74	80	86	64		
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	113	118	118	97	118	112	85	118	98	76	116	88	97	106	79	88
			Exposed	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	96	118	115	89	118	99	77	115	87	96	102	77	84	90	97	76	80	87	64	73	79	57		
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	126*	127*	127*	116*	127*	119*	103	127*	108	90	127*	95	81	121*	86	73
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	121*	127*	127*	116*	127*	121*	107	127*	109*	91	127*	94	79	118*	82	101	110*	73	89	99	94	80	90	85	72		
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115*	122*	118*	104*	122*	110*	93	117*	99	84
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	118*	122*	119*	105*	122*	108*	91	114*	96	81	101*	86	73	89	78	92
40	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	99	117	111	88	117	99	79	114	90	97	104	83	88	95	76	81
			Exposed	117	117	117	117	117	117	110	117	117	101	117	116	94	117	109	87	117	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54		
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	95	118	118	83	118	94	73	113	84	93	100	75	83	89	97	75
			Exposed	118	118	118	118	118	116	118	118	106	118	118	97	118	115	89	118	106	82	118	98	76	114	85	94	98	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	125*	129*	126*	115	129*	116	99	129*	103	86	125*	91	77	117	81	99	109	73	89
			Exposed	129*	129*	129*	129*	129*	129*	129*	122*	129*	128*	116	129*	121*	107	129*	115	98	129*	107	90	125*	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57	
		27-45	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	124*	127*	127*	118*	127*	123*	112*	127*	118*	103	122*	106	89	111*	93	79	96	83	98	85	75	88	76	94	79	99	85	72
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	124*	127*	127*	118*	127*	123*	112*	127*	118*	103	122*	106	89	111*	93	79	96	83	98	85	75	88	76	94	79	99	85	72
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	113	90			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	97	115	109	87	115	99	79	114	90	97	104	83	88
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	117*	118*	118*	106*	118*	118*	94	118*	110*	84
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	107*	118*	118*	92	118*	106*	81	118*	94	73	113*	84	93	101	76	84
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	102*
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	82	100
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	95*	80*
	D	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	101	115	114	91	115	103	82	115	94	75	109	86	93
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	108	115	115	100	115	115	94	115	104	82	115	93	74	105	84	90	96	76	81	87	93	74	80	86	64		
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	113*	118*	118*	97	118*	112*	85	118*	98	76	116*	88	97	106*	79	88
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	114*	118*	118*	105*	118*	118*	96	118*	115*	89	118*	99	77	115*	87	96	102	77	84	90	97	76	80	87	64	73	79	57
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	107*	111*	109*	91*	111*	94*	79	111*	82	101	110*	73	89	99*	94	80
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	103*	111*	108*	90*	111*	95*	81	111*	86*	73
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	93*	104*	99*	84*
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	91*	104*	96*	81*	100*	86*	73	89*	78	92	80*	98	83
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	98	107	107	90			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	99	107	107	90	97	104	83	89
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	106*	108*	108*	94*	108*	108*	84			
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	107*	108*	108*	92*	108*	106*	81	108*	94*	73	108*	84	93	101*	76	84
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	86*	91*	91*	77*	91*	82*	100
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	80*
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	94	107	107	90			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	101	107	107	91	107	107	103	82	107	94	75	107	86	93
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	98*	108*	108*	90	108*	98*	76	108*	88*	97	106*	79	88
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	96*	108*	102*	77	84	90*	97	76	80	87	64	73	79	57
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	73*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	79*	91*	82*	101	91*	73*	89	91*	94	80	90*	85	72
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	84*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	73*
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	99	111	111	88	111	99	79	111	90	97	104	83	88	95	76	81
			Exposed	111	111	111	111	111	111	110	111	111	101	111	111	94	111	109	87	111	103	82	111	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54		
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	111*	115*	115*	95*	115*	108*	83	115*	94*	73	113*	84	93	100*	75	83	89	97	75
			Exposed	115*	115*	115*	115*	115*	115*	115*	106*	115*	115*	97*	115*	115*	89	115*	106*	82	115*	98*	76	114*	85	94	98*	74	82	86	93	73	77	83	61	98	75	54	88	64	46	
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	99*	100*	100*	86*	100*	91*	77*	100*	81*	99	100*	73	89
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	98*	100*	100*	90*	100*	100*	101	86	95*	90	76	86*	80*	98	100	101	86	95*	90	76	84*
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	73*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	89*	94*	93*	79*	94*	83*	98	85*	75*	88	76*	94	79	99	85	72

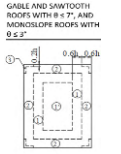
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

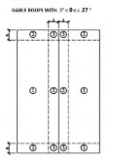
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

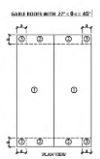
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

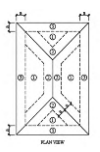












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

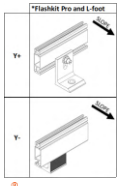
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	90
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	87	98	98	79	98	90	97	98	83	89
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	84*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	81*	94*	94*	73*	94*	84*	93	94*	76*	84
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	77*	78*	78*	78*	78*	78*	100*
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	91	98	98	82	98	94	75	98	86	93
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	85*	94*	94*	76*	94*	88*	97	94*	79*	88
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	89*	94*	94*	77*	94*	94*	73	94*	87	96	94*	77*	84
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	73*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	94*	80	78*	85	72
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	92*	73*	96*	83
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	88	103	99	79	103	90	97	103	83	88
			Exposed	103	103	103	103	103	103	103	103	103	103	103	101	103	103	94	103	103	87	103	103	103	103	103	82	103	91	98	102	82	87	92	74	78	84	89	71	77	82	69
		7-20	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	95*	104*	104*	83*	104*	94*	73	104*	84*	93	100*	75	83
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	97*	104*	104*	89*	104*	104*	82*	104*	98*	76	104*	85*	94	98*	74	82	86*	93	73	77	83	61	98	75	54	88	64	48
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	77*	85*	81*	99*	85*	73*	89	78*	85	72
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	77*	85*	80*	98*	85*	101*	86	85*	90	76	85*	80	64
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	81*	81*	73*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	79*	81*	81*	98*	81*	75*	88	76*	94*	79	99*	85	72
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	87	91	91	91	91	91	91	91	91	90
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	87	91	91	91	91	91	97	91	83	88
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*	82*	82*	73*	82*	82*	93	82*	76*	84
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	100*
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	82	91	91	75	91	86	93
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	82	91	91	74	91	84	90	91	76	81	87	93	74	80	86	64
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	77*	82*	82*	96*	82*	77*	84	82*	97*	76	80*	87	64	73*	79	57
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	101*	67*	67*	89*	67*	94*	80*	67*	85*	72
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	79	96	90	97	96	83	88	95	76	81
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	87	96	96	82	96	91	98	96	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	83*	90*	90*	73*	90*	84*	93	90*	75*	83
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	89*	90*	90*	82*	90*	90*	76*	90*	85*	94	90*	74*	82	86*	93	73	77*	83	61	98	75	54	88	64	48
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	89*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	98*	74*	73*	57
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	98*	70*	70*	88*	70*	94*	79	99*	86*	72
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	79	86	86	86	86	86	97	86	83	89
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	93*	72*	72*	84*
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	75	86	86	93
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	74	86	84	90	86	76	81	86	93	74	80	86	64
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	96*	72*	72*	84*	72*	97*	76	72*	87*	64	72*	79	57
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	72*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	83*
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	79	90	90	97	90	83	88	90	76	81
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	98*	90	82	87	90	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73*	79*	79*	93*	79*	75*	83	79*	97*	75
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	76*	79*	79*	94*	79*	74*	82	79*	83	73	77*	83	61	98*	75	54	88	64	48
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	99*	66*	66*	89*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	99*	66*	66*	76*	66*	80*	64	66*	73	57
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	94*	62*	62*	88*	62*	94*	79*	94*	85*	72*

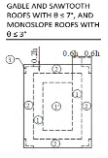
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

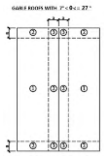
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

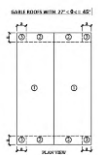
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

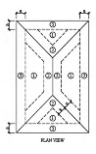












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

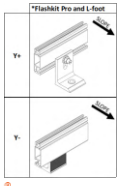
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	97	81	81	89		
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	93*	64*	64*	84*		
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	75	81	81	93		
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	93	74	80	86	64	
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	97*	64*	64*	88*		
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	97*	76*	64*	87*	64	79*	57
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	98	85	82	87	85	74	78	84	89	71	77	82	69	94	76	54	
		7-20	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	93*	71*	71*	83*	71*	97*	75
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	94*	71*	71*	82*	71*	93*	73	71*	83*	61	98*	75	54	88*	64	48
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	76*	88*	80*	64	88*	73*	57
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	79*	84*	84*	72*
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	95	77	77	88
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	93		
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	90	77	76	81	77	93	74
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	85*	87*	87*	76*	87*	87*	64	87*	79*	57
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	98	81	81	87	81	74	78	81	89	71	77	82	69	94	76	54	
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	93*	64*	64*	83*	64*	97*	75*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	94*	64*	64*	82*	64*	93*	73	64*	83*	61	97*	75*	54	88*	64	48
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	72*

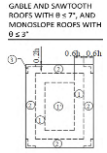
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

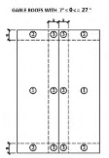
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

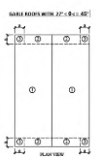
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

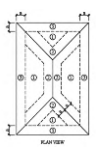












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

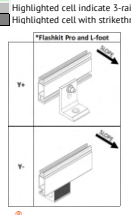
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	124	104	127	115	94	125	104	86	117	95	79	109	88	73	100	82	65
			Exposed	127	127	127	127	127	121	127	127	115	127	125	106	127	119	99	127	114	93	127	108	88	118	96	79	108	87	72	97	80	61	90	74	50	83	67	42	77	57	56
		7-20	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	122*	127*	127*	116*	127*	124*	100	127*	114*	90	127*	100	82	117*	91	75	106	84	68	96	78	56
			Exposed	127*	127*	127*	127*	127*	120*	127*	127*	114*	127*	126*	103	127*	119*	95	127*	114*	90	127*	104	85	118*	92	76	104	83	66	93	76	52	85	68	42	79	55	56	73	46	50
		20-27	Interior	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	119*	126*	121*	105	126*	110*	94	126*	97	86	121*	89	79	115*	82	73
			Exposed	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	121*	126*	126*	114*	126*	120*	104	126*	114*	97	126*	98	86	120*	88	78	111*	80	71	99	73	57	92	64	46	85	52	40
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117*	121*	119*	105*	121*	110*	95	117*	99*	87	106*	92	81
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	111*	95	116*	98	86	101*	90	79	92	82	72	85	76	62	78	71	51
	C	0-7	Interior	127	127	127	127	127	124	127	127	118	127	127	112	127	123	103	127	117	96	127	112	91	121	99	82	112	90	75	101	83	66	93	76	54	86	71	45	80	61	39
			Exposed	127	122	102	127	116	95	127	109	89	122	101	83	117	95	79	111	90	74	104	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	127*	127*	127*	127*	127*	124*	127*	127*	117*	127*	127*	109	127*	123*	99	127*	117*	93	127*	110	88	122*	95	79	111	86	71	97	78	57	89	72	46	82	61	59	75	50	52
			Exposed	127*	123*	99	127*	115*	91	127*	105	85	123*	97	80	117*	91	75	109	85	71	100	81	61	89	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	124*	126*	126*	118*	126*	124*	110*	126*	118*	100	126*	102	90	124*	91	81	115*	83	74	104	76	63	95	70	51	88	57	42
			Exposed	126*	126*	117*	126*	122*	108*	126*	115*	97	126*	105	91	126*	96	85	123*	91	80	118*	85	76	105	77	64	94	68	49	86	53	40	79	43	53	73	57	47	65	50	42
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	114*	121*	115*	99*	119*	102*	89	108*	93	82	96	85	75	88	79	68	81	73	56
			Exposed	121*	121*	121*	121*	121*	118*	121*	121*	110*	121*	116*	100*	121*	109*	94	119*	101*	89	113*	95	84	96	86	75	87	78	66	79	72	52	72	60	42	61	49	56	50	42	50
	D	0-7	Interior	127	127	120	127	127	114	127	123	104	127	118	97	127	112	91	125	105	86	120	98	81	110	89	74	98	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	127	112	91	124	103	85	118	96	79	112	90	75	104	85	70	97	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	127*	127*	120*	127*	127*	112	127*	124*	100	127*	117*	93	127*	110	88	127*	110	88	127*	100	82	121*	94	78	107	85	69	94	77	53	86	69	42	79	55	56	72	45	49
			Exposed	127*	109	87	125*	98	81	118*	92	76	110	86	71	100	81	61	94	76	52	88	72	45	79	56	56	72	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	126*	126*	126*	126*	126*	126*	126*	126*	119*	126*	124*	111*	126*	118*	100	126*	110*	94	126*	101	89	122*	90	79	113*	81	72	100	74	58	92	64	46	85	51	39	79	42	53
			Exposed	126*	117*	100	126*	108*	93	126*	98	86	123*	91	81	118*	85	76	112*	80	71	104	76	62	92	65	47	84	50	58	77	41	51	71	54	44	59	47	39	50	42	35
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	120*	121*	121*	114*	121*	119*	105*	121*	114*	98	118*	100*	88	103*	91	80	93	83	73	85	76	62	78	71	50	72	59	42			
			Exposed	121*	121*	114*	121*	118*	103*	121*	111*	95	119*	102*	89	113*	95	84	102*	90	79	95	85	75	85	77	63	77	69	49	70	56	40	55	46	53	45	59	47	59	53	42
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	104	119	115	94	119	104	86	117	95	79	109	88	73	100	82	65
			Exposed	119	119	119	119	119	119	119	119	119	119	119	106	119	119	99	119	114	93	119	108	88	118	96	79	108	87	72	97	80	61	90	74	50	83	67	42	77	57	56
		7-20	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	116*	119*	119*	100	119*	114*	90	119*	100	82	117*	91	75	106	84	68	96	78	56
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	114*	119*	119*	103	119*	119*	95	119*	114*	90	119*	104	85	118*	92	76	104	83	66	93	76	52	85	68	42	79	55	56	73	46	50
		20-27	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119*	124*	121*	105	124*	110*	94	124*	97	86	121*	89	79	115*	82	73
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	121*	124*	124*	114*	124*	120*	104	124*	114*	97	124*	98	86	120*	88	78	111*	80	71	99	73	57	92	64	46	85	52	40
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117*	121*	119*	105*	121*	110*	95	117*	99*	87	106*	92	81
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	109*	121*	111*	95	116*	98	86	101*	90	79	92	82	72	85	76	62	78	71	51
	C	0-7	Interior	119	119	119	119	119	119	119	119	118	119	119	112	119	119	103	119	117	96	119	112	91	119	99	82	112	90	75	101	83	66	93	76	54	86	71	45	80	61	39
			Exposed	119	119	102	119	116	95	119	109	89	119	101	83	117	95	79	111	90	74	104	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	119*	119*	119*	119*	119*	119*	119*	119*	117*	119*	119*	109	119*	119*	99	119*	117*	93	119*	110	88	119*	95	79	111	86	71	97	78	57	89	72	46	82	61	59	75	50	52
			Exposed	119*	119*	99	119*	115*	91	119*	105	85	119*	97	80	117*	91	75	109	85	71	100	81	61	89	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	118*	124*	124*	110*	124*	118*	100	124*	102	90	124*	91	81	115*	83	74	104	76	63	95	70	51	88	57	42
			Exposed	124*	124*	117*	124*	122*	108*	124*	115*	97	124*	105	91	124*	96	85	123*	91	80	118*	85	76	105	77	64	94	68	49	86	53	40	79	43	53	73	57	47	65	50	42
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	114*	121*	115*	99*	119*	102*	89	108*	93	82	96	85	75	88	79	68	81	73	56
			Exposed	121*	121*	114*	121*	118*	103*	121*	111*	95	119*	102*	89	113*	95	84	102*	90	79	95	85	75	85	77	63	77	69	49	70	56	40	55	46	53	45	59	47	59	53	42
	D	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	117	119	119	104	119	115	94	119	104	86	117	95	79	109	88	73	100	82	65
			Exposed	119	119	102	119	116	95	119	109	89	119	101	83	117	95	79	111	90	74	104	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	119*	119*	119*	119*	119*	119*	119*	119*	117*	119*	119*	109	119*	119*	99	119*	117*	93	119*	110	88	119*	95	79	111	86	71	97	78	57	89	72	46	82	61	59	75	50	52
			Exposed	119*	119*	99	119*	115*	91	119*	105	85	119*	97	80	117*	91	75	109	85	71	100	81	61	89	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	118*	124*	124*	110*	124*	118*	100	124*	102	90	124*	91	81	115*	83	74	104	76	63	95	70	51	88	57	42
			Exposed	124*	124*	117*	124*	122*	108*	124*	115*	97	124*	105	91	124*	96	85	123*	91	80	118*	85	76	105	77	64	94	68	49	86	53	40	79	43	53	73	57	47	65	50	42
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	114*	121*	115*	99*	119*	102*	89	108*	93	82	96	85	75	88	79	68	81	73	56
			Exposed	121*	121*	114*	121*	118*	103*	121*	111*	95	119*	102*	89	113*	95	84	102*	90	79	95	85	75	85	77	63	77	69	49	70	56	40	55	46	53	45	59	47	59	53	42
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	104	105	94	105	104	86	105	95	79	105	88	73	100	82	65
			Exposed	105	105	105	105	105	105	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	96	79	105	87	72	97	80	61	90	74	50	83	67	42	77	57	56
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	100	105	105	90	105	100	82	105	91	75	105	84	68	96	78	56
			Exposed	105	105	105	105	105	105	105	105	105	105	105	103	105	105	95	105	105	90	105	104	85	105	92	76	104	83	66	93	76	52	85	68	42	79	55	56	73	46	50
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	105*	115*	110*	94*	115*	97*	86	115*	89	79	115*	82	73
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	104*	115*	114*	97*	115*	98*	86	115*	88	78	111*	80	71	99*	73	57	92	64	46	85	52	40
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	105*	111*	110*	95*	111*	99*	87*	106*	92*	81
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	109*	111*	111*	95*	111*	98*	86*	101*	90*	79	92*	82	72	85*	76	62	78	71	51
	C	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	103	105	105	96	105	105	91	105	99	82	105	90	75	101	83	66	93	76	54	86	71	45	80	61	39			
			Exposed	105	105	102	105	105	95	105	105	89	105	101	83	105	95	79	105	90	74	104	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	93	105	105	88	105	95	79	105	86	71	97	78	57	89	72	46	82	61	59	75	50	52
			Exposed	105	105	99	105	105	91	105	105	85	105	97	80	105	91	75	105	85	71	100	81	61	89	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	100*	115*	102*	90	115*	91	81	115*	83	74	104*	76	63	95*	70	51
			Exposed	115*	115*	115*	115*	115*	108*	115*	115*	97	115*	105*	91	115*	96*	85	115*	91	80	115*	85	76	105*	77	64	94*	68	49	86	53	40	79	43	53	73	57	47	65	50	42
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	99*	111*	102*	89*	108*	93*	82	96*	85*	75	88*	79	68	81	73	56
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	110*	111*	111*	100*	111*	109*	94*	111*	101*	89*	111*	95*	84	96*	86*	75	87*	78	66	79	72	52	72	60	42	61	49	56	50	42	50
	D	0-7	Interior	105	105	105	105	105	105	105	105	104	105	105	97	105	105	91	105	105	86	105	98	81	105	89	74	98	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	105	105	91	105	103	85	105	96	79	105	90	75	104	85	70	97	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	115*	115*	115*	115*	115*	105	115*	115*	100	115*	115*	93	115*	105	88	115*	100	82	115*	94	78	105	85	69	94	77	53	86	69	42	79	55	56	72	45	49	62	59	44
			Exposed	115*	105	87	115*	98	81	115*	92	76	105	86	71	100	81	61	94	76	52	88	72	45	79	56	56	72	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	111*	117*	117*	100	117*	110*	94	117*	101*	89	117*	90	79	113*	81	72	100	74	58	92	64	46	85	51	39	79	42	53
			Exposed	117*	117*	100	117*	108*	93	117*	98	86	117*	91	81	117*	85	76	112*	80	71	104*	76	62	92	65	47	84	50	58	77	41	51	71	54	44	59	47	39	50	42	35
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	105*	116*	114*	98*	116*	100*	88	103*	91*	80	93*	83	73	85	76	62	78	71	50	72	59	42
			Exposed	116*	116*	114*	116*	116*	103*	116*	111*	95*	116*	102*	89	113*	95*	84	102*	90	79	95*	85	75	85	77	63	77	69	49	70	56	40	55	46	53	45	59	47	59	53	42

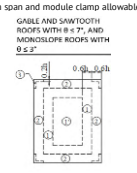
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

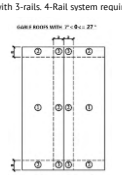
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

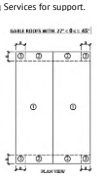
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

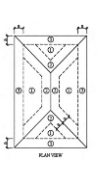












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

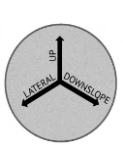
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

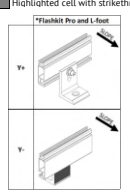
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	86	94	94	79	94	94	88	73	94	82	65
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	79	94	87	72	94	80	61	90	74	50	83	67	42	77	57	56
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	95*	82*	95*	91*	75	95*	84*	68	95*	78	56
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	95*	85*	95*	92*	76	95*	83*	66	93*	76	52	85*	68	42	79	55	56	73	46	50
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	79*	88*	88*	79*	88*	82*	73*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	79*	88*	80*	71*	88*	73*	57	88*	64	46	85*	52	40
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	72*	81*	81*	72*	81*	71*	51
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	79*	81*	81*	72*	81*	76*	62	78*	71*	51
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	82	94	90	75	94	83	66	93	76	54	86	71	45	80	61	39
			Exposed	94	94	94	94	94	94	94	89	94	94	83	94	94	79	94	90	74	94	85	70	93	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	93*	95*	95*	88*	95*	95*	79	95*	86*	71	95*	78	57	89*	72	46	82*	61	59	75	50	52
			Exposed	95*	95*	95*	95*	95*	91*	95*	95*	85*	95*	95*	80	95*	91*	75	95*	85*	71	95*	81	61	89*	72	46	81	59	58	73	46	50	63	59	44	51	52	39	42	47	36
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	81*	88*	83*	74*	88*	76*	63	88*	70*	51	88*	57	42
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	80*	88*	85*	76*	88*	77*	64	88*	68*	49	86*	53	40	79*	43	53	73*	57	47	65	50	42
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	75*	81*	72*	52	72*	60	42	61	49	56
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	75*	81*	78*	66*	79*	72*	52	72*	60	42	61	49	56	50	42	50
	D	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	86	94	94	81	94	89	74	94	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	94	94	91	94	94	85	94	94	79	94	90	75	94	85	70	94	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	93*	95*	95*	95*	95*	95*	88*	95*	95*	78	95*	85	69	94*	77	53	86	69	42	79	55	56	72	45	49	62	59	44
			Exposed	95*	95*	87*	95*	95*	81	95*	92*	76	95*	86	71	95*	81	61	94*	76	52	88*	72	45	79	56	56	72	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	89*	96*	90*	79*	96*	81*	72	96*	74*	58	92*	64	46	85*	51	39	79*	42	53
			Exposed	96*	96*	96*	96*	96*	93*	96*	96*	86*	96*	91*	81*	96*	85*	76*	96*	80*	71	96*	76*	62	92*	65	47	84*	50	58	77*	41	51	71	54	44	59	47	33	50	42	35
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	80*	88*	83*	73*	85*	76*	62	78*	71*	50
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	79*	88*	85*	75*	85*	77*	63	77*	70*	49	70*	56	40	55	46	53	45	59	47	59	53	42
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	79	90	90	88	73	90	82	65
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	74	90	83	61	90	74	56
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	82*	83*	83*	75*	83*	83*	68*	83*	78*	56
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	76*	83*	83*	66*	83*	76*	52	83*	68*	42
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	40
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	51*
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	82	90	90	75	90	83	66	90	76	54	86	71	45	80	61	39
			Exposed	90	90	90	90	90	90	90	90	89	90	90	83	90	90	79	90	90	74	90	85	70	90	77	55	85	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	79*	83*	83*	71*	83*	78	57	83*	72*	46	82*	61	59	75*	50	52
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	80*	83*	83*	75*	83*	83*	71*	83*	81*	61	83*	72*	46	81*	59	58	73*	46	50	63	59	44	51	52	39	42	47	35
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*	68*	68*	51	68*	57*	42
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	49	68*	53*	40	68*	43	53	68*	57	47	65*	50	42
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	56*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	52*	64*	60*	42	61*	50*	56	50*	42	50
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	93	93	91	93	93	86	93	93	81	93	89	74	93	81	62	90	74	51	83	67	42	77	56	56	72	48	50
			Exposed	93	93	91	93	93	85	93	93	79	93	90	75	93	85	70	93	80	61	92	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	82*	92*	92*	78*	92*	85*	69	92*	77*	53	86*	69	42	79*	55	56	72*	45	49	62	59	44
			Exposed	92*	92*	87*	92*	92*	81*	92*	92*	86*	71*	92*	81	61	92*	76*	52	88*	72*	45	79*	56	56	72*	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	58	75*	42	53
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72*	75*	74*	58*	75*	64*	46	75*	51	39	75*	42	33
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	50	70*	59*	42
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	63*	70*	56*	40	56*	46	53	45	59	47	59	53	42
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	79	84	84	73	84	82	65
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	74	84	84	72	84	57	56
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	56*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	40
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	52*	40
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	84	84	83	66	84	76	54	84	71	45	80	61	39
			Exposed	84	84	84	84	84	84	84	84	84	84	84	83	84	84	79	84	84	74	84	84	70	84	77	55	84	70	44	78	58	57	72	48	50	62	41	44	53	55	39
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57*	68*	68*	46	68*	61*	59	68*	50	52
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	61*	68*	68*	46	68*	59*	58	68*	46	50	63*	59	44	51	52	39	42	47	35
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	51*	56*	56*	42
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	49*	56*	53*	40	56*	43	53	56*	57	47	56*	50	42
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	42*	53*	49*	56	50*	42*	50
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	81	87	87	74	87	81	62	87	74	51	83	67	42	77	56	56	72	48	50
			Exposed	87	87	87	87	87	85	87	87	79	87	87	75	87	85	70	87	80	61	87	76	54	83	68	42	76	55	55	70	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	75*	53	75*	69*	42	75*	55	56	72*	45	49	62*	59	44
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	71*	75*	75*	61*	75*	75*	52	75*	72*	45	75*	56	56	72*	44	48	58	57	42	46	50	37	39	44	33	53	39	29
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	58*	62*	62*	46	62*	51*	39	62*	42	53
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	51	62*	54	44	59*	47	39	50*	42	36
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	50*	58*	58*	42
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49*	58*	56*	40	55*	46*	53	45*	59	47	59	53	42

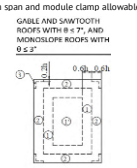
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

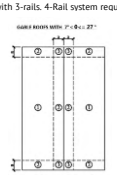
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

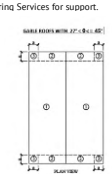
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

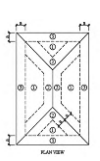












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

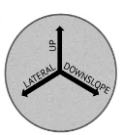
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

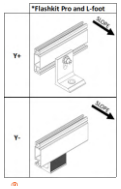
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3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

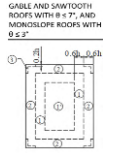
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

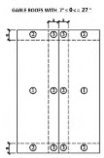
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

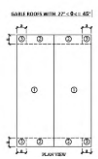
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

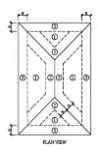












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

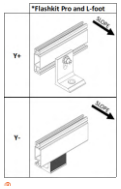
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	50	63	63	42	63	57	56
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	56*	39*	39*	50*
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	54	63	63	45	63	61	39
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	58	57
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	62	67	67	51	67	67	42
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	61	67	67	54	67	67	42	67	55	55	67	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	56*	43*	43*	49	43*	59*	44
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	56*	43*	43*	48	43*	57*	42	43*	50	37	39*	44	33	53*	39	29
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	53*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	54*	36*	36*	51*	36*	54*	44*	36*	47*	39	36*	42*	35
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	52*	34*	53*	47*	52*	52*	42*
100	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	54*	36*	36*	50*
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54	60	60	45	60	60	39
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	58	57
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	54*	36*	36*	50*	36*	54*	44*	36*	52*	39	36*	47*	35
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	51	63	63	50
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	54	63	63	42	63	55	55	63	45	48	58	58	42	48	52	37	42	46	33
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	56*	39*	39*	49*	39*	59*	44
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	56*	39*	39*	48*	39*	57*	42	39*	50*	37	39*	44	33	53*	39	29
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	49*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	49*	33*	33*	49*	33*	49*	44*	33*	47*	39*	33*	42*	35
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	47*	31*	48*	47*	47*	47*	42*

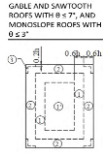
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

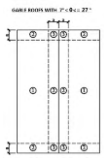
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

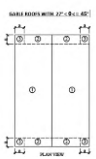
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

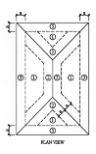












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

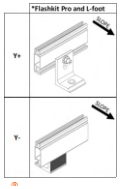
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	149	150	150	137	150	144	127	150	135	119	148	127	111	139	120	100	132	114	91
			Exposed	150	150	150	150	150	150	150	150	146	150	150	139	150	150	132	150	144	127	150	138	121	148	128	112	138	119	99	129	111	88	121	100	80	115	92	73	106	84	90
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	151	128	151	138	118	151	128	108	145	120	96	135	113	86
			Exposed	151	151	151	151	151	151	151	151	150	151	151	141	151	151	134	151	149	127	151	142	121	151	129	109	143	119	94	132	108	83	122	95	74	114	85	95	103	77	85
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	136	151	137	124	151	126	114	143	116	100	134	104	88	126	93	78	119	83	71
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	136	151	137	124	151	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	141	152	142	131	152	134	123	146	126	116	146	126	116	146	126	116
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	144	152	143	132	142	124	114	142	124	114	131	116	101	133	107	90	115	97	82
	C	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	143	150	150	136	150	147	130	150	141	125	150	131	115	142	122	103	132	115	92	124	105	83	118	95	76	111	88	68
			Exposed	150	150	136	150	146	128	150	139	122	150	132	116	147	126	110	141	121	102	135	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	151	131	151	146	125	151	133	114	148	122	99	136	114	87	126	100	78	118	90	68	108	81	89
			Exposed	151	151	138	151	151	129	151	143	122	151	135	116	151	128	107	147	122	98	139	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	142	128	151	130	118	147	120	105	137	110	92	129	97	82	122	87	74
			Exposed	151	151	151	151	151	147	151	151	137	151	144	130	151	136	123	151	129	117	151	123	110	138	112	93	128	96	81	120	84	72	112	75	91	101	96	82	92	86	74
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	148	152	147	136	152	136	125	147	127	117	136	119	106	126	112	95	118	101	86
			Exposed	152	152	152	152	152	152	152	152	145	152	149	137	152	142	130	152	135	124	151	130	119	137	120	107	125	110	93	116	98	83	103	88	74	91	80	94	81	73	85
	D	0-7	Interior	150	150	150	150	150	145	150	150	137	150	148	130	150	141	125	150	135	119	150	130	114	140	121	101	130	112	90	122	101	80	115	92	73	106	84	90	97	77	82
			Exposed	150	141	124	150	134	118	148	127	112	141	122	103	135	117	95	129	111	89	124	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	151	151	151	151	151	148	151	151	139	151	151	131	151	146	125	151	139	119	151	132	113	146	121	97	133	110	84	123	96	74	114	85	95	102	77	85	91	68	77
			Exposed	151	146	124	151	137	117	151	129	109	148	122	99	139	116	90	132	109	83	126	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	148	133	151	140	127	151	128	116	144	118	101	134	105	88	126	93	78	118	83	70	111	75	91
			Exposed	151	151	141	151	146	132	151	137	124	151	129	117	151	123	110	143	117	100	137	110	92	126	93	79	117	81	65	107	72	87	96	91	78	87	82	68	80	74	59
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	134	124	144	125	114	132	117	101	123	107	90	115	96	81	102	88	74
			Exposed	152	152	148	152	151	139	152	143	132	152	136	125	151	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	71	86	76	90	77	68	81	66	87	73
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	125	141	131	115	141	122	103	132	115	92	124	105	83	118	95	76	111	88	68
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		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	125	141	133	114	141	122	99	136	114	87	126	100	78	118	90	68	108	81	89
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	147	147	133	147	136	123	147	127	115	146	119	104
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116	146	126	116	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	132	142	124	114	131	116	101	133	107	90	115	97	82	115	97	82
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	125	141	131	115	141	122	103	132	115	92	124	105	83	118	95	76	111	88	68
			Exposed	141	141	136	141	141	128	141	139	122	141	132	116	141	126	110	141	121	102	135	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	125	141	133	114	141	122	99	136	114	87	126	100	78	118	90	68	108	81	89
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	147	147	133	147	136	123	147	127	115	146	119	104
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116	146	126	116	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	132	142	124	114	131	116	101	133	107	90	115	97	82	115	97	82
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	125	141	131	115	141	122	103	132	115	92	124	105	83	118	95	76	111	88	68
			Exposed	141	141	136	141	141	128	141	139	122	141	132	116	141	126	110	141	121	102	135	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	125	141	133	114	141	122	99	136	114	87	126	100	78	118	90	68	108	81	89
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	147	147	133	147	136	123	147	127	115	146	119	104
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	78	119	83	71
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116	146	126	116	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	132	142	124	114	131	116	101	133	107	90	115	97	82	115	97	82
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	127	111	127	120	100	127	114	91
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	121	127	127	112	127	119	99	127	111	88	121	100	80	115	92	73	106	84	90
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	128	108	128	120	96	128	113	86
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	121	128	128	109	128	128	94	128	108	83	122	95	74	114	85	95	103	77	85
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	136	123	136	127	115	136	119	104
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	124	136	126	114	136	116	100	134	104	88	126	93	78	119	83	71	119	83	71
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	141*	143*	143*	131	143*	134	123	143*	126	116
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	132	143*	133	122	143*	124	114	131	116	101	123	107	90	115	97	82
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	115	127	122	103	127	115	92	124	105	83	118	95	76	111	88	68
			Exposed	127	127	127	127	127	127	127	127	122	127	127	116	127	126	110	127	121	102	127	117	95	125	105	84	117	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	125	128	128	114	128	122	99	128	114	87	126	100	78	118	90	68	108	81	89
			Exposed	128	128	128	128	128	128	128	128	122	128	128	116	128	128	107	128	122	98	128	116	90	127	101	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	128	136	130	118	136	120	105	136	110	92	129	97	82	122	87	74
			Exposed	136	136	136	136	136	136	136	136	136	136	136	130	136	136	123	136	129	117	136	123	110	136	112	93	128	96	81	120	84	72	112	75	91	101	96	82	92	86	74
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	136	143*	136	125	143*	127	117	136	119	106	126	112	95	118	101	86
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	137	143*	142*	130	143*	135	124	143*	130	119	137	120	107	125	110	93	116	98	83	103	88	74	91	80	94	81	73	85
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	119	127	127	114	127	121	101	127	112	90	122	101	80	115	92	73	106	84	90	97	77	82
			Exposed	127	127	124	127	127	118	127	127	112	127	122	103	127	117	95	127	111	89	124	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	119	128	128	113	128	121	97	128	110	84	123	96	74	114	85	95	102	77	85	91	68	77
			Exposed	128	128	124	128	128	117	128	128	109	128	122	99	128	116	90	128	109	83	126	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	133	138	138	127	138	128	116	138	118	101	134	105	88	126	93	78	118	83	70	111	75	91
			Exposed	138	138	138	138	138	132	138	137	124	138	129	117	138	123	110	138	117	100	137	110	92	126	93	79	117	81	65	107	72	87	96	91	78	87	82	68	80	74	59
		27-45	Interior	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	141	149*	143	135	149*	134	124	142	125	114	132	117	101	123	107	90	115	96	81	102	88	74
			Exposed	149*	149*	149*	149*	149*	139	149*	143	132	149*	136	125	149*	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	71	86	76	90	77	68	81	66	87	73

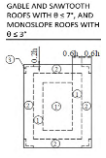
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

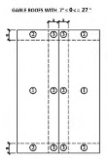
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

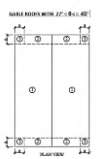
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

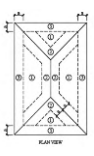












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

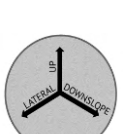
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

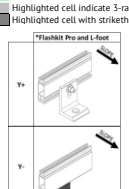
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	100	118	114	91
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	99	118	111	88	118	100	80	115	92	73	106	84	90
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	118	119	119	119	119	119	108	119	119	96	119	113	86
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	83	119	95	74	114	85	95	103	77	85
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	123*	128*	127*	115*	128*	119*	104						
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	124*	128*	128*	114*	128*	116*	100	128*	104	88	126*	93	78	119*	83	71
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	123*	124*	124*	124*						
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122*	124*	124*	114*	124*	116*	101	123*	107*	90	115*	97	82			
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	115	118	118	103	118	115	92	118	105	83	118	95	76	111	88	68
			Exposed	118	118	118	118	118	118	118	118	118	116	118	118	116	118	118	116	118	118	116	118	118	105	118	117	94	75	107	85	91	97	78	83	94	75	107	85	102	77	85
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	119	99	119	114	87	119	100	78	118	90	68	108	81	89
			Exposed	119	119	119	119	119	119	119	119	119	116	119	119	107	119	119	98	119	116	90	119	119	104	78	117	88	98	104	78	86	92	69	77	82	89	66	74	80	56	
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	118*	128*	120*	105	128*	110	92	128*	97	82	122*	87	74
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	123*	128*	128*	117*	128*	123*	110	128*	112*	93	128*	96	81	120*	84	72	112*	75	91	101	96	82	92	86	74
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	117*	124*	119*	106*	124*	112*	95	118*	101	86
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119*	124*	120*	107*	124*	110*	93	116*	98	83	103*	88	74	91	80	94	81	73	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	112	90	118	101	80	115	92	73	106	84	90	97	77	82
			Exposed	118	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	97	119	110	84	119	96	74	114	85	95	102	77	85	91	68	77
			Exposed	119	119	119	119	119	117	119	119	109	119	119	99	119	116	90	119	109	83	119	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	127*	133*	128*	116	133*	105	88	126*	93	78	118	83	70	111	75	91			
			Exposed	133*	133*	133*	133*	133*	132*	133*	133*	124*	133*	129*	117	133*	123*	110	133*	117	100	133*	110	92	126*	93	79	117	81	65	107	72	87	96	91	78	87	82	68	80	74	59
		27-45	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	124*	129*	117*	101	123*	107	90	115*	96	81	102	88	74
			Exposed	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	125*	129*	129*	119*	129*	124*	114*	129*	119*	105	123*	108	91	114*	95	80	98	85	71	86	76	90	77	68	81	66	87	73
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	100	115	114	91			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	111	115	115	100	115	92	73	106	84	90
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	108*	118*	118*	96	118*	113*	86			
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	109*	118*	118*	94	118*	108*	83	118*	95	74	114*	85	95	103	77	85
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104*	114*	114*	104*	114*	114*	104*
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	100*	114*	114*	104*	88*	114*	93*	78	114*	83	71
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	97*	82*
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	103	115	115	92	115	105	83	115	95	76	111	88	68
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	102	115	115	95	115	105	84	115	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	114*	118*	118*	99	118*	114*	87	118*	100	78	118*	90	68	108*	81	89
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107*	118*	118*	98	118*	116*	90	118*	101	78	117*	88	98	104	78	86	92	69	77	82	89	66	74	80	56		
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	110*	92*	114*	97*	82	114*	87*	74		
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	110*	93*	114*	96*	81	114*	84	72	112*	75	91	101*	96	82	92*	86	74		
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	106*	107*	107*	95*	107*	101*	86*		
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	93*	107*	98*	83*	103*	88*	74	91*	80	94	82*	73	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	112	90	118	101	80	115	92	73	106	84	90	97	77	82
			Exposed	118	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	97	121*	110	84	121*	96	74	114	85	95	102	77	85	91	68	77
			Exposed	121*	121*	121*	121*	121*	117*	121*	121*	109	121*	121*	99	121*	116	90	121*	109	83	121*	100	77	115	86	95	100	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	116*	119*	118*	101*	119*	105*	88	119*	93	78	118*	83	70	111*	75	91
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	117*	119*	119*	110*	119*	117*	100*	119*	110*	92	119*	93	79	117*	81	65	107*	72	87	96*	91	78	87	82	68	80	74	59		
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	101*	115*	107*	90*	115*	96*	81	102*	88	74
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	105*	115*	108*	91*	113*	95*	80	98*	85	71	86	76	90	77	68	81	66	87	73
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	100	108	108	91			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	100	108	92	73	106	84	90
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	96*	110*	110*	86		
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	109*	110*	110*	94*	110*	108*	83	110*	95*	74	110*	85	95	103*	77	85
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	88*	94*	93*	78*	94*	83*	71
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	82*
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	103	108	108	92	108	105	83	108	95	76	108	88	68			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	102	108	108	95	108	105	84	108	94	75	107	85	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	98*	110*	110*	90*	110*	110*	88*	110*	99*	68	108*	81	89
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	110*	110*	98*	110*	110*	90*	110*	101*	78	110*	88*	98	104*	78	86	92*	69	77	82	89	66	74	80	56
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	82*	94*	87*	74*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	81*	94*	94*	72*	94*	75*	91	94*	82	94*	86	74	
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	82*
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	101	112	112	90	112	101	80	112	92	73	106	84	90	97	77	82
			Exposed	112	112	112	112	112	112	112	112	112	103	112	112	95	112	111	89	112	104	83	112	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55		
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	113*	116*	116*	97*	116*	110*	84	116*	96*	74	114*	85	95	102*	77	85	91	68	77
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	116*	99*	116*	116*	90	116*	109*	83	116*	100*	77	115*	86	95	100*	76	83	88	95	74	78	85	62	70	76	55	90	66	49
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	101*	103*	103*	88*	103*	93*	78	103*	83*	70	103*	75	91
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	100*	103*	103*	92*	103*	93*	79*	103*	81*	65	103*	72	87	96*	91	78	87*	82	68	80*	74	59
		27-45	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	90*	97*	96*	81*	97*	88*	74*
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	91*	97*	95*	80*	97*	85*	71	86*	77*	90	77*	68	81	66	87	73

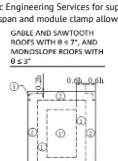
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

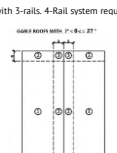
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

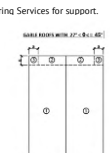
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

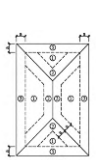












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

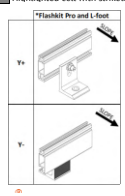
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	91
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	88	99	99	80	99	92	73	99	84	90
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	86*
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	83*	96*	95*	74*	96*	85*	95	96*	77*	85
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	79*	79*	71*
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	92	99	99	83	99	95	76	99	88	68
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	91	97	78	83	89	71	75	82	87	66
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	87*	96*	96*	78*	96*	90*	68	96*	81*	89
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	78*	96*	88*	98	82*	89	66	74*	80	56
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	74*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	75*	91	79*	96*	82	79*	86	74
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	74*	75*	75*	94*	75*	73*	85			
70	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	101	104	104	90	104	101	80	104	92	73	104	84	90	97	77	82
			Exposed	104	104	104	104	104	104	104	104	104	104	104	103	104	104	95	104	104	89	104	104	83	104	92	73	104	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	97*	106*	106*	84*	106*	96*	74	106*	85*	95	102*	77	85	91*	68	77
			Exposed	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	99*	106*	106*	90*	106*	106*	83*	106*	100*	77	106*	86*	95	100*	76	83	88*	95	74	78	85	62	70	76	55	90	66	49			
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	78*	87*	83*	70*	87*	75*	91
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	79*	87*	81*	65	87*	72*	87	87*	91	78	87*	82	68	80*	74	59
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*	82*	82*	74*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	80*	82*	82*	71*	82*	76*	90	77*	68*	81	67*	87	73
	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	91
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	88	92	92	83	92	92	73	92	84	90
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	74*	83*	83*	95	83*	77*	85
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	83	92	92	76	92	88	68
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	84	92	92	75	92	85	91	92	78	83	89	71	75	82	87	66
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	78*	83*	83*	68*	83*	81*	88
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	78*	83*	83*	98*	83*	78*	86	83*	69*	77	82*	89	66	74*	80	56
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	91*	69*	96*	82*	69*	86*	74
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	90	97	97	80	97	97	80	97	92	73	97	84	90
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	95	97	97	89	97	97	83	97	92	73	97	83	89	94	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	84*	92*	92*	74*	92*	85*	95	92*	77*	85	91*	68	77
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	90*	92*	92*	83*	92*	92*	77*	92*	86*	95	92*	76*	83	88*	95	74	78*	85	69	70	76	55	90	66	49
		20-27	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	70*	76*	75*	91*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	65*	76*	76*	65*	76*	76*	91*	76*	82	68	76*	74	59
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	72*	72*	71*	72*	72*	90*	72*	68*	81	66*	87*	73
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	80	87	87	73	87	84	90
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	95*	74*	74*	85*
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	68
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	75	87	85	91	87	78	83	87	71	75
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	89*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	86*	74*	69*	77	74*	89*	66	74*	80	56
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	91*	61*	92*	82*	61*	86*	74*
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90	91	91	80	91	91	73	91	84	90	91	77	82
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	83	91	91	73	91	83	89	91	75	80	85	91	72	78	83	62	72	77	55
		7-20	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	74*	81*	81*	95*	81*	77*	85	81*	68*	77
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	77*	81*	81*	95*	81*	76*	83	81*	95*	74
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	91*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	91*	67*	82*	68	67*	74	59
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	90*	64*	64*	81*	64*	87*	74*

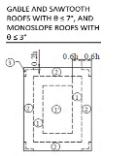
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

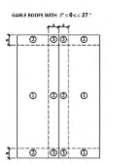
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

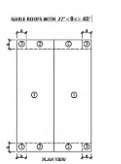
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

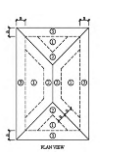












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

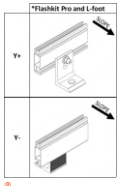
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	73	82	82	90		
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	95*	66*	66*	85*		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	82	68		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	75	82	82	91	82	78
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	98*	66*	66*	86*	66*	66*
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*	55*	55*
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	90	86	77	82	
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	73	86	83	89	86	75	80	85	91	72	78	83	62	72	77	55	
		7-20	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	95*	73*	73*	73*	73*	73*	77
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	95*	73*	73*	83	73*	95*	74	73*	85*	62	70*	76	55	90*	66	49
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	91*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	87*	60*	91*	78*	60*	82*	68	60*	74*	59		
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	86*	57*	57*	81*	57*	86*	73*		
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	90		
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	90*	60*	60*
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	76	78	78	68		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	91	78	78
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	90*	60*	60*	86*	60*	60*	77*	60*	89*	66	60*	80*	56
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	90	82	77	82		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	73	82	82	89	82	75
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	73*

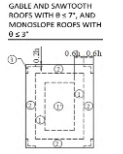
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

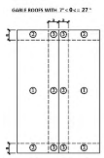
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

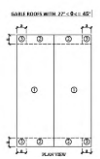
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

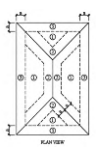












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

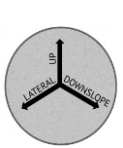
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

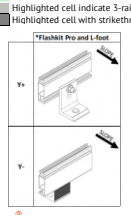
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	118*	120*	120*	114	120*	120*	108	120*	115*	97	120*	105	87	116*	96	80	108	89	74	100	82	65	93	76	54
			Exposed	120*	120*	118*	120*	120*	112	120*	120*	105	120*	116*	98	120*	111	92	120*	104	87	118*	99	82	109	89	74	99	81	63	90	74	51	83	67	42	77	56	53	72	47	47
		7-20	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	118*	120*	120*	113*	120*	120*	106*	120*	115*	94	120*	104*	85	116*	94	77	107*	86	71	98*	79	57	90	73	47
			Exposed	120*	120*	117*	120*	120*	111*	120*	120*	103*	120*	116*	96*	120*	110*	90	120*	103*	84	118*	97*	79	108*	86	71	97*	78	55	88	71	43	80	57	53	74	46	47	65	57	42
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	111*	98*	116*	100*	88	116*	91*	81	113*	84	74	104*	77	66			
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	103	116*	110*	97*	116*	103*	91*	116*	92*	81	111*	83	73	101*	75	61	93*	67	48	86	53	58	80	43	50
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	97*	109*	100*	89*	107*	93*	82	98*	86*	76			
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	106*	109*	109*	100*	109*	101*	89*	105*	92*	81	95*	84*	74	87*	77	64	80	71	52	74	60	43
	C	0-7	Interior	120*	120*	120*	120*	120*	115*	120*	120*	109	120*	119*	102	120*	114	95	120*	108	90	120*	102	85	113	92	77	102	84	69	93	77	55	86	71	45	80	60	57	74	51	50
			Exposed	120*	114	95	120*	106	88	119*	100	83	114	93	78	108	88	73	101	83	67	96	79	59	87	71	46	79	59	55	72	48	48	62	60	42	52	52	55	74	46	46
		7-20	Interior	120*	120*	120*	120*	120*	115*	120*	120*	107*	120*	119*	99*	120*	114*	93	120*	107*	87	120*	100*	82	112*	90	74	101*	81	61	91	74	48	83	63	57	77	51	49	71	42	44
			Exposed	120*	114*	93	120*	105*	86	119*	97*	80	114*	91	75	107*	85	70	100*	80	60	94	76	51	84	64	58	76	49	48	66	58	42	52	50	37	42	44	33	53	39	29
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	115*	116*	116*	108*	116*	114*	101*	116*	107*	95*	116*	96*	84	115*	86	76	105*	78	67	96*	71	53	89	59	42	82	48	53
			Exposed	116*	116*	107*	116*	113*	99*	116*	104*	92*	116*	97*	86	116*	91*	80	114*	85	75	108*	80	71	97*	72	54	88	57	41	80	44	51	74	54	44	65	47	39	54	42	36
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	103*	109*	105*	93*	109*	95*	84*	99*	87*	76	90*	80	70	83	74	57	76	66	47
			Exposed	109*	109*	109*	109*	109*	108*	109*	109*	101*	109*	106*	94*	109*	100*	88*	109*	94*	83	102*	89*	78	91*	80	71	82	73	55	74	61	44	64	50	53	51	41	47	41	53	42
	D	0-7	Interior	120*	120*	111	120*	120*	103	120*	115*	96	120*	109	90	120*	102	85	116*	96	80	112	91	76	100	82	66	91	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	120*	102	85	115*	95	79	109	89	74	102	84	68	96	79	59	91	75	51	86	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	120*	120*	110*	120*	120*	101*	120*	115*	94	120*	107*	88	120*	100*	82	116*	94	77	111*	89	73	99*	79	58	89	72	45	81	58	53	74	46	47	64	57	41	52	49	37
			Exposed	120*	100*	82	115*	93	76	108*	86	71	100*	80	60	94	76	51	88	71	44	83	62	57	74	47	47	62	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	114*	101*	116*	107*	94*	116*	101*	89	116*	95*	83	113*	84	75	102*	76	63	93*	68	49	86	53	58	79	43	50	74	53	44
			Exposed	116*	107*	94*	116*	99*	87	116*	92*	81	114*	86	76	108*	80	71	102*	76	61	96*	71	52	86	54	59	78	42	49	72	51	42	60	45	37	49	39	33	41	35	29
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	103*	109*	109*	97*	109*	104*	92*	107*	93*	82	96*	85*	75	87*	77	65	80	71	52	73	60	42	63	50	53
			Exposed	109*	109*	103*	109*	108*	96*	109*	101*	89*	109*	95*	84*	102*	89*	78	95*	84*	74	90*	79	69	80	72	53	72	58	41	59	46	51	46	57	45	56	49	39	49	44	35
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	108	111	111	97	111	105	87	111	96	80	108	89	74	100	82	65	93	76	54
			Exposed	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	94	111	99	82	105	89	74	99	81	63	90	74	53	77	56	53
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	106*	112*	112*	94	112*	104*	85	112*	94	77	107*	86	71	98*	79	57	90	73	47
			Exposed	112*	112*	112*	112*	112*	111*	112*	112*	103*	112*	112*	96*	112*	110*	90	112*	103*	84	112*	97*	79	108*	86	71	97*	78	55	88	71	43	80	57	53	74	46	47	65	57	42
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	111*	98*	116*	100*	88	116*	91*	81	113*	84	74	104*	77	66
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	103*	116*	110*	97*	116*	103*	91*	116*	92*	81	111*	83	73	101*	75	61	93*	67	48	86	53	58	80	43	50
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	97*	109*	100*	89*	107*	93*	82	98*	86*	76
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	106*	109*	109*	100*	109*	101*	89*	105*	92*	81	95*	84*	74	87*	77	64	80	71	52	74	60	43
	C	0-7	Interior	111	111	111	111	111	111	111	111	109	111	111	102	111	111	95	111	108	90	111	102	85	111	92	77	102	84	69	93	77	55	86	71	45	80	60	57	74	51	50
			Exposed	111	111	95	111	106	88	111	100	83	111	93	78	108	88	73	101	83	67	96	79	59	87	71	46	79	59	55	72	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	99*	112*	112*	93	112*	107*	87	112*	100*	82	112*	90	74	101*	81	61	91	74	48	83	63	57	77	51	49	71	42	44
			Exposed	112*	112*	93	112*	105*	86	112*	97*	80	112*	91	75	107*	85	70	100*	80	60	94	76	51	84	64	58	76	49	48	66	58	42	52	50	37	42	44	33	53	39	29
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	115*	116*	116*	116*	108*	116*	114*	101*	116*	107*	95*	116*	96*	84	115*	86	76	105*	78	67	96*	71	53	89	59	42	82	48	53
			Exposed	116*	116*	107*	116*	113*	99*	116*	104*	92*	116*	97*	86	116*	91*	80	114*	85	75	108*	80	71	97*	72	54	88	57	41	80	44	51	74	54	44	65	47	39	54	42	35
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	103*	109*	105*	93*	109*	95*	84*	99*	87*	76	90*	80	70	83	74	57	76	66	47
			Exposed	109*	109*	109*	109*	109*	108*	109*	109*	101*	109*	106*	94*	109*	100*	88*	109*	94*	83	102*	89*	78	91*	80	71	82	73	55	74	61	44	64	50	53	51	41	47	41	53	42
	D	0-7	Interior	111	111	111	111	111	103	111	111	96	111	109	90	111	102	85	111	96	80	111	91	76	100	82	66	91	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	111	102	85	111	95	79	109	89	74	102	84	68	96	79	59	91	75	51	86	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	112*	110*	110*	112*	112*	101*	112*	112*	94	112*	107*	88	112*	100*	82	112*	94	77	111*	89	73	99*	79	58	89	72	45	81	58	53	74	46	47	64	57	41	52	49	37
			Exposed	112*	100*	82	112*	93	76	108*	86	71	100*	80	60	94	76	51	88	71	44	83	62	57	74	47	47	62	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	111*	98*	116*	100*	88	116*	91*	81	113*	84	74	104*	77	66
			Exposed	116*	116*	107*	116*	113*	99*	116*	104*	92*	116*	97*	86	116*	91*	80	114*	85	75	108*	80	71	97*	72	54	88	57	41	80	44	51	74	54	44	65	47	39	54	42	35
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	97*	109*	100*	89*	107*	93*	82	98*	86*	76
			Exposed	109*	109*	103*	109*	108*	96*	109*	101*	89*	109*	95*	84*	102*	89*	78	95*	84*	74	90*	79	69	80	72	53	72	58	41	59	46	51	46	57	45	56	49	39	49	44	35
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	87	96	96	80	96	89	74	96	82	65	93	76	54			
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	90	96	96	82	96	89	74	96	81	63	90	74	51	83	67	42	77	56	53	72	47	47
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	94	103*	103*	85	103*	94	77	103*	86	71	98*	79	57	90	73	47
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96*	103*	103*	90	103*	103*	84	103*	97*	79	103*	86	71	97*	78	55	88	71	43	80	57	53	74	46	47	65	57	42
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	98*	102*	102*	88*	102*	91*	81*	102*	84*	74	102*	77	66
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	97*	102*	102*	91*	102*	92*	81*	102*	83*	73	101*	75	61	93*	67	48	86*	53	58	80*	43	50
		27-45	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	89*	93*	93*	89*	93*	93*	82*	93*	93*	82*	93*	86*	76*			
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	89*	93*	92*	81*	93*	84*	74*	87*	77*	64	80*	71*	52	74*	60	43
	C	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	95	96	96	90	96	96	85	96	92	77	96	84	69	93	77	55	86	71	45	80	60	57	74	51	50
			Exposed	96	96	95	96	96	88	96	96	83	96	93	78	96	88	73	96	83	67	96	79	59	87	71	46	79	59	55	72	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	99*	103*	103*	93	103*	103*	87	103*	100*	82	103*	90	74	101*	81	61	91	74	48	83	63	57	77	51	49	71	42	44
			Exposed	103*	103*	93	103*	103*	86	103*	97*	80	103*	91	75	103*	85	70	100*	80	60	94	76	51	84	64	58	76	49	48	66	58	42	52	50	37	42	44	33	53	39	29
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	95*	102*	96*	84*	102*	86*	76	102*	78*	67	96*	71	53	89*	59	42	82*	48	53
			Exposed	102*	102*	102*	102*	102*	99*	102*	102*	92*	102*	97*	86*	102*	91*	80*	102*	85*	75	102*	80*	71	97*	72	54	88*	57	41	80*	44	51	74	54	44	65	47	39	54	42	35
		27-45	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	84*	93*	93*	84*	93*	87*	76*	90*	80*	70	83*	74*	57	76*	66	47
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	88*	93*	93*	83*	93*	89*	78*	91*	80*	71*	82*	73*	55	74*	61	44	64	50	53	51	41	47	41	53	42
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	90	96	96	85	96	96	80	96	91	76	96	82	66	91	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	96	96	85	96	95	79	96	89	74	96	84	68	96	79	59	91	75	51	86	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	106*	106*	106*	106*	106*	101*	106*	106*	94	106*	106*	88	106*	100*	82	106*	94	77	106*	89	73	99*	79	58	89	72	45	81	58	53	74	46	47	64	57	41	52	49	37
			Exposed	106*	100*	82	106*	93	76	106*	86	71	100*	80	60	94	76	51	88	71	44	83	62	57	74	47	47	62	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	101*	108*	107*	94*	108*	101*	89*	108*	95*	83	108*	84	75	102*	76	63	93*	68	49	86*	53	58	79	43	50	74	53	44
			Exposed	108*	107*	94*	108*	99*	87	108*	92*	81	108*	86*	76	108*	80	71	102*	76	61	96*	71	52	86*	54	59	78	42	49	72	51	42	60	45	37	49	39	33	41	35	29
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	97*	100*	100*	92*	100*	93*	82*	96*	85*	75	87*	77*	65	80*	71	52	73	60	42	63	50	53
			Exposed	100*	100*	100*	100*	100*	96*	100*	100*	89*	100*	95*	83*	100*	89*	79	95*	84*	74	90*	79*	69	80*	72	53	72	58	41	59	46	51	46	57	45	56	49	39	49	44	35

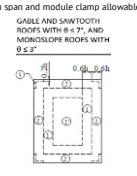
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

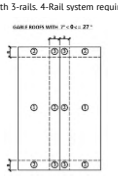
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

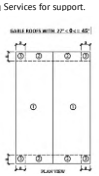
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

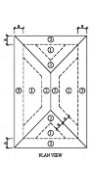












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

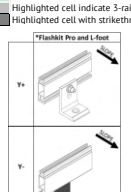
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	74	86	86	82	65	86	76	54
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	74	86	81	63	86	74	51	83	67	42	77	56	53	72	47	47
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	86*	71*	87*	79*	57	87*	73*	47
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	87*	87*	79*	87*	86*	71*	87*	78*	55	87*	71*	43	80*	57	53	74*	46	47	65	57	42
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	66*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	56	73*	43	50
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	52	68*	60*	43
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	77	86	84	69	86	77	55	86	71	45	80	60	57	74	51	50
			Exposed	86	86	86	86	86	86	86	86	83	86	86	78	86	86	73	86	83	67	86	79	59	86	71	46	79	59	55	72	48	48	62	60	42	52	52	52	44	46	46
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	74*	87*	81*	61	87*	74*	48	83*	63	57	77*	51	49	71*	42	44
			Exposed	87*	87*	87*	87*	87*	86*	87*	87*	80*	87*	87*	75*	87*	85*	70*	87*	80*	60	87*	76*	51	84*	64	58	76*	49	48	66	58	42	52	50	37	42	44	38	53	39	29
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	67*	73*	71*	53	73*	59*	42	73*	48	53
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	71*	73*	72*	54	73*	57*	41	73*	44	51	73*	54	44	65*	47	39	54	42	36
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	61*	44	64*	50	53	51	41	47	41	53	42
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	55*	68*	68*	61*	44	64*	50	53	51	41	47	41	53	42
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	80	86	86	76	86	82	66	86	75	52	84	67	42	77	56	86	71	47	47	62	60	41
			Exposed	86	86	85	86	86	79	86	86	74	86	84	68	86	79	59	86	75	51	86	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	87*	87*	87*	73*	87*	79*	58	87*	72	45	81*	58	53	74*	46	47	64	57	41	52	49	37
			Exposed	87*	87*	82*	87*	87*	76*	87*	86*	71	87*	80*	60	87*	76*	51	87*	71	44	83*	62	57	74*	47	47	62	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	75*	80*	76*	63*	80*	68*	49	80*	53	58	79*	43	50	74*	53	44
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	76*	80*	80*	71*	80*	76*	61	80*	71*	52	80*	54	59	78*	42	49	72*	51	42	60	45	37	49	39	33	41	35	29
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	65*	74*	71*	52	73*	60*	42	63*	50	53
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*	74*	72*	53	72*	58*	41	59*	46	51	46	57	45	56	49	39	49	44	35
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	74	83	83	82	65	83	76	54
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	74	83	81	63	83	74	51	67	42	47
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	57*	53	70*	57
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	53	70*	46	47
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	43	50
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	52*	54*	54*	43*
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	77	83	83	69	83	77	55	83	71	45	80	60	57	74	51	50
			Exposed	83	83	83	83	83	83	83	83	83	83	83	78	83	83	73	83	83	67	83	79	59	83	71	46	79	59	55	72	48	48	62	60	42	52	52	37	44	46	35
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	70*	70*	63*	57	70*	51	49	70*	42	44
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	60*	70*	70*	51	70*	64*	58	70*	49	48	66*	58	42	52	50	37	42	44	33	53	39	29
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	53*	57*	57*	42	57*	48*	53
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	57*	41	57*	44*	51	57*	54	44	57*	47	39	54*	42	35
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	44*	54*	50*	53
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	80	85	85	76	85	82	66	85	75	52	84	67	42	77	56	53	71	47	47	62	60	41
			Exposed	85	85	85	85	85	79	85	85	74	85	84	68	85	79	59	85	75	51	85	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	73*	77*	77*	58	77*	72*	45	77*	58	53	74*	46	47	64*	57	41	52	49	37
			Exposed	77*	77*	77*	77*	77*	76*	77*	77*	71*	77*	77*	60*	77*	76*	51	77*	71*	44	77*	62*	57	74*	47	47	62*	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	49*	63*	53*	58	63*	43	50	63*	53	44
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	52*	63*	54*	59	63*	42	49	63*	51	42	60*	45	37	49*	39	33	41	35	29
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	52*	59*	59*	42	59*	50*	53
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	53*	59*	58*	41	59*	47*	51	46*	57	45	56	49	39	49	44	35
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	65	77	76	54
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	63	77	74	51	77	67	42	77	56	53	72	47	47
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	47*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	43	57*	57*	53	57*	46*	47	57*	57	42
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	58*	47*	43*	50
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	45	77	69	77	57	74	51	50
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	77	67	77	77	59	77	71	46	77	59	55	72	48	48	62	60	42	52	52	37	44	46	35
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57	57*	51*	49	57*	42	44
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	51*	57*	57*	58	57*	49*	48	57*	58	42	52*	50	37	42	44	33	53	39	29
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	53
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	53
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	76	80	80	66	80	75	52	80	67	42	77	56	53	71	47	47	62	60	41
			Exposed	80	80	80	80	80	79	80	80	74	80	80	68	80	79	59	80	75	51	80	71	45	78	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	58*	63*	63*	45	63*	58*	53	63*	46	47	63*	57	41	52*	49	37
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	51*	63*	63*	44	63*	62*	57	63*	47	47	62*	55	41	48	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	49*	52*	52*	58	52*	43*	50	52*	53	44
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	59	52*	42*	49	52*	51	42	52*	45	37	49*	39	33	41*	35	29
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	42*	49*	49*	53
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41*	49*	46*	51	46*	57*	45	57*	49	39	49	44	35

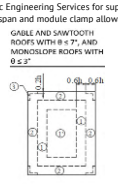
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

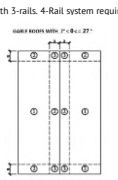
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

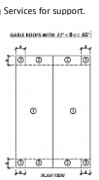
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

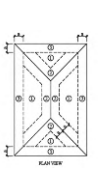












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

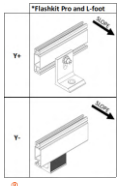
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	54
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	51	70	67	42	70	56	53	70	47	47
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	48*	53	48*	46*	47	48*	57*	42
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	58*	40*	40*	50*
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70	70	55	70	70	45	70	60	57	70	51	50
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	59	70	70	46	70	59	55	70	48	48	62	60	42	52	52	37	44	46	38
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	57*	48*	48*	49	48*	42*	44
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	58*	48*	48*	48	48*	58*	42	48*	50	37	42*	44	33	53	39	29
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	53*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	51*	40*	54*	44	40*	47*	39	40*	42	35
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	53*	38*	38*	47	38*	53*	42
	D	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	66	74	74	52	74	67	42	74	56	53	71	47	47	62	60	41
			Exposed	74	74	74	74	74	74	74	74	74	74	74	68	74	74	59	74	74	51	74	71	45	74	57	53	71	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	47	53*	57	41	52*	49	37
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	44*	53*	53*	57	53*	47*	47	53*	55	41	48*	47	35	58	41	31	50	37	27	44	32	24
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	58*	44*	43*	50	44*	53*	44
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	59*	44*	42*	49	44*	51*	42	44*	45	37	44*	39	33	41*	35	29
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	51*	41*	57*	45	56*	50*	39
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	51*	41*	57*	45	56*	50*	39	49*	44	35
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	54
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	42	65	56	53	65	47	47
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	53*	42*	42*	47	42*	57*	42
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	52*	35*	35*	50*
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	55	65	65	45	65	60	57	65	51	50
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	46	65	59	55	65	48	48	62	60	42	52	52	37	44	46	33
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	58*	42*	42*	48	42*	58*	42	42*	50*	37	42*	44	33	53*	39	29
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	52*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	51*	35*	52*	44*	35*	47*	39	35*	42*	35
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	49*	33*	33*	47*	33*	49*	42*
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	69	69	56	53	69	47	47	62	60	41
			Exposed	69	69	69	69	69	69	69	69	69	69	69	68	69	69	59	69	69	51	69	69	45	69	57	53	69	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	53	46*	46*	47	46*	46*	57	46*	46*	37
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	57*	38*	38*	49*	38*	51*	42
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	42	61	56	53	61	47	47
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	53*	37*	37*	47*	37*	55*	42
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	55	61	61	45	61	60	57	61	51	50
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	46	61	59	55	61	48	48	61	60	42	52	52	37	44	46	33
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	55*	37*	37*	49*	37*	37*	44*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	55*	37*	37*	48*	37*	55*	42	37*	50*	37	37*	44*	33	53*	39	29
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	59*	46*	42*	35
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	52	65	65	42	65	56	53	65	47	47	62	60	41
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	51	65	65	45	65	57	53	65	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	53*	41*	41*	47*	41*	57*	41	41*	49*	37
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	57*	41*	41*	47*	41*	41*	47*	41*	55*	41	41*	47*	31	50*	37	27	44	32	24
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	51*	34*	34*	50*	34*	51*	44*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	51*	34*	34*	49*	34*	51*	42	34*	45*	33	34*	39*	33	34*	45*	33
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	48*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	48*	45*	48*	48*	39*	48*	44*	36

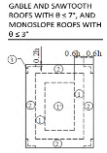
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

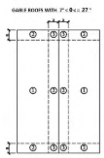
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

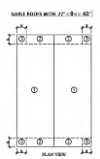
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

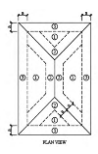












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

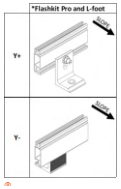
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	42	58	56	53	58	47	47
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	47*	33*	50*	42*
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	45	58	58	57	58	51	50
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	46	58	58	55	58	48	48	58	60	42
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	49*	33*	33*	44*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	48*	33*	50*	37
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	52	61	61	42	61	56	53	61	61	47	61	60	41
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	61	45	61	57	53	61	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	47*	36*	36*	47*	36*	49*	37
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	55*	36*	36*	47*	36*	55*	41	36*	47*	35	55*	41	31	50*	37	27	44*	32	24
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42	45*	45*	37*	45*	40*	33	45*	35*	29
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	35*
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	42	55	55	53	55	47	47
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	45	55	55	57	55	51	50
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	46	55	55	55	55	48	48	55	60	42
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	37*	45*	44*	33	45*	39*	29
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	42	58	58	53	58	58	47	58	60	41
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	45	58	57	53	58	46	46	58	57	40	48	49	35	40	43	31	52	38	27
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	47*	33*	33*	50*	33*	40*	37
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	50*	33*	33*	47*	33*	50*	41*	33*	47*	35	50*	41*	31	50*	37	27	44*	32	24
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	40*	33*	41*	35*	29
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*

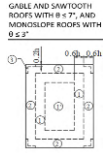
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

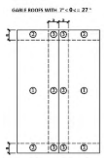
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

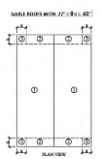
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

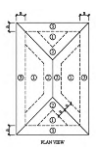












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

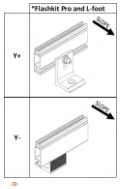
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	148	149	149	136	149	143	126	149	134	118	146	126	109	138	119	98	130	113	90
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	131	149	142	125	149	136	120	147	126	110	137	118	97	128	109	87	120	99	79	114	90	97	104	83	89
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	138	149	149	126	149	137	117	149	127	106	143	119	94	133	110	84
			Exposed	149	149	149	149	149	149	149	149	148	149	149	140	149	149	132	149	148	126	149	140	120	149	128	107	141	118	92	130	106	81	121	94	73	113	84	93	101	76	84
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	143	150	146	131	150	135	122	150	126	114	145	118	102
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	150	135	150	136	123	150	124	113	142	115	97	132	102	86	125	91	77	118	82	100
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	141	130	151	132	122	144	125	115
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	151	130	151	131	121	141	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	135	149	146	129	149	140	123	149	130	114	140	121	101	131	114	91	123	103	82	117	94	75	109	86	93
			Exposed	149	149	134	149	144	127	149	137	121	149	131	115	146	125	108	139	120	100	134	116	94	124	104	82	116	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	149	149	149	149	149	149	149	149	149	144	149	149	136	149	149	129	149	145	123	149	132	113	146	121	97	134	112	85	125	98	76	116	88	97	106	79	88		
			Exposed	149	149	136	149	149	128	149	141	121	149	133	114	149	126	105	145	120	96	138	115	89	125	99	77	115	87	96	102	77	84	90	97	76	80	87	64	73	79	57
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	139	150	140	126	150	128	116	146	119	103	136	108	90	128	95	81	121	86	73
			Exposed	150	150	150	150	150	145	150	150	136	150	142	128	150	134	121	150	127	116	149	121	107	137	109	91	127	94	79	118	82	101	110	73	89	99	94	80	90	85	72
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	146	134	151	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	151	151	151	151	151	151	151	151	143	151	147	136	151	140	129	151	134	123	149	128	118	135	119	105	124	108	91	114	96	81	100	86	73	89	78	92	80	98	83
	D	0-7	Interior	149	149	149	149	149	143	149	149	136	149	147	129	149	140	123	149	134	118	149	129	113	138	119	99	129	111	88	121	99	79	114	90	97	104	83	88	95	76	81
			Exposed	149	140	123	149	132	117	147	126	110	140	121	101	134	116	94	128	109	87	123	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	149	149	149	149	149	147	149	149	138	149	149	130	149	145	123	149	137	117	149	130	111	144	119	95	131	108	83	121	94	73	113	84	93	100	75	83	89	97	75
			Exposed	149	144	123	149	135	116	149	127	106	146	121	97	138	115	89	130	106	82	124	98	76	114	85	94	98	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	150	150	150	150	150	150	150	150	148	150	150	139	150	146	132	150	139	125	150	126	115	143	116	99	133	103	86	125	91	77	117	81	99	109	73	89			
			Exposed	150	150	139	150	144	130	150	135	122	150	128	116	149	121	107	142	115	98	136	107	90	125	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	139	151	145	133	151	133	122	142	123	113	130	115	99	121	105	89	113	94	80
			Exposed	151	151	146	151	149	138	151	141	130	151	134	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	79	96	83	98	85	75	88	76	94	79	99	85	72
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	136	139	139	126	139	139	118	139	126	109	138	119	98	130	113	90
			Exposed	139	139	139	139	139	139	139	139	139	139	139	137	139	139	131	139	139	125	139	136	120	139	126	110	137	118	97	128	109	87	120	99	79	114	90	97	104	83	89
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	138	140	140	126	140	137	117	140	127	106	140	119	94	133	110	84
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	132	140	140	126	140	140	120	140	128	107	140	128	107	130	106	81	121	94	73	113	84	93	101	76	84
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	131	146	135	122	146	126	114	145	118	102
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	142	146	146	135	146	136	123	146	124	113	142	115	97	132	102	86	125	91	77	118	82	100
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	139	150	141	130	150	132	122	144	125	115
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	142	130	150	131	121	141	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	135	139	139	129	139	139	123	139	130	114	139	121	101	131	114	91	123	103	82	117	94	75	109	86	93
			Exposed	139	139	134	139	139	127	139	137	121	139	131	115	139	125	108	139	120	100	134	116	94	124	104	82	116	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	138	140	140	126	140	137	117	140	127	106	140	119	94	133	110	84
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		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	140	126	146	126	116	146	119	103	136	108	90	128	95	81	121	86	73
			Exposed	146	146	146	146	146	145	146	146	136	146	142	128	146	134	121	146	127	116	146	121	107	137	109	91	127	94	79	118	82	101	110	73	89	99	94	80	90	85	72
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	146	134	150	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	150	150	150	150	150	150	150	150	143	150	147	136	150	140	129	150	134	123	149	128	118	135	119	105	124	108	91	114	96	81	100	86	73	89	78	92	80	98	83
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	129	139	139	123	139	134	118	139	129	113	138	119	99	129	111	88	121	99	79	114	90	97	104	83	88	95	76	81		
			Exposed	139	139	123	139	132	117	139	126	110	139	121	101	134	116	94	128	109	87	123	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	140	140	140	140	140	138	140	140	130	140	140	130	140	140	123	140	137	117	140	130	111	140	119	95	131	108	83	121	94	73	113	84	93	100	75	83	89	97	75
			Exposed	140	140	123	140	135	116	140	127	106	140	121	97	138	115	89	130	106	82	124	98	76	114	85	94	98	74	82	86	93	73	77	83	65	98	75	54	88	64	46
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	139	147	146	132	147	139	125	147	126	115	143	116	99	133	103	86	125	91	77	117	81	99	109	73	89
			Exposed	147	147	139	147	144	130	147	135	122	147	128	116	147	121	107	142	115	98	136	107	90	125	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	139	151	145	133	151	133	122	142	123	113	130	115	99	121	105	89	113	94	80	100	86	73
			Exposed	151	151	146	151	149	138	151	141	130	151	134	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	79	96	83	98	85	75	88	76	94	79	99	85	72
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	118	126	126	109	126	119	98	126	113	90
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		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	117	127	127	106	127	119	94	127	110	84			
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	120	127	127	107	127	118	92	127	106	81	121	94	73	113	84	93	101	76	84
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	131	135	135	122	135	126	114	135	118	102
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	123	135	124	113	135	115	97	132	102	86	125	91	77	118	82	100
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	139*	142*	142*	130	142*	132	122	142*	125	115
			Exposed	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	130	142*	131	121	141*	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	114	126	126	114	126	121	101	126	114	91	123	103	82	117	94	75
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		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	113	127	127	113	127	127	97	127	112	85	125	98	76	116	88	97
			Exposed	127	127	127	127	127	127	127	127	121	127	127	114	127	126	105	127	120	96	127	115	89	125	99	77	115	87	96	102	77	84	90	97	76	80	87	64	73	79	57
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	126	135	128	116	135	119	103	135	108	90	128	95	81	121	86	73
			Exposed	135	135	135	135	135	135	135	135	135	135	135	134	121	135	127	116	135	121	107	135	109	91	127	94	79	118	82	101	110	73	89	99	94	80	90	85	72		
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	134	142*	135	124	142*	126	115	134	118	104	125	110	93	117	99	84
			Exposed	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	136*	142*	140*	129	142*	134	123	142*	128	118	136*	119	105	124	108	91	114	96	81	100	86	73	89	78	92	80	98	83
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	118	126	126	113	126	119	99	126	111	88	121	99	79	114	90	97	104	83	88	95	76	81
			Exposed	126	126	123	126	126	117	126	126	110	126	121	101	126	116	94	126	109	87	123	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	117	127	127	111	127	119	95	127	108	83	121	94	73	113	84	93	100	75	83	89	97	75
			Exposed	127	127	123	127	127	116	127	127	106	127	121	97	127	115	89	127	106	82	124	98	76	114	85	94	98	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	132	137	137	125	137	126	115	137	116	99	133	103	86	125	91	77	117	81	99	109	73	89
			Exposed	137	137	137	137	137	130	137	135	122	137	128	116	137	121	107	137	115	98	136	107	90	125	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57
		27-45	Interior	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	139	146*	142	133	146*	133	122	141	123	113	130	115	99	121	105	89	113	94	80	100	86	73
			Exposed	146*	146*	146*	146*	146*	138	146*	141	130	146*	134	124	146*	128	118	141	123	112	134	118	103	122	106	89	111	93	79	96	83	98	85	75	88	76	94	79	99	85	72

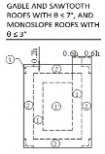
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

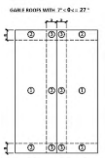
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

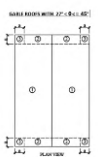
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

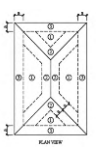












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

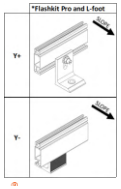
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	98	117	113	90			
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	87	117	99	79	114	90	97	104	83	89
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	106	118	118	94	118	110	84			
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	81	118	94	73	113	84	93	101	76	84
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	122*	127*	127*	126*	114*	127*	118*	102		
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	123*	127*	127*	124*	113*	127*	115*	97	127*	102	86	125*	91	77	118*	82	100
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115*
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	111*	122*	115*	99	121*	105*	89	114*	95	80
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	114	117	117	101	117	114	91	117	103	82	117	94	75	109	86	93
			Exposed	117	117	117	117	117	117	117	117	117	115	117	117	118	108	117	117	117	100	117	116	94	117	104	82	116	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	113	118	118	97	118	112	85	118	98	76	116	88	97	106	79	88
			Exposed	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	96	118	115	89	118	99	77	115	87	96	102	77	84	90	97	76	80	87	64	73	79	57		
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	126*	127*	127*	116*	127*	119*	103	127*	108	90	127*	95	81	121*	86	73
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	121*	127*	127*	127*	116*	127*	121*	107	127*	109*	91	127*	94	79	118*	82	101	110*	73	89	99	94	80	90	85	72
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115*	122*	118*	104*	122*	110*	93	117*	99	84
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	119*	105*	122*	108*	91	114*	96	81	101*	86	73	89	78	92	80	88	83
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	99	117	111	88	117	99	79	114	90	97	104	83	88	95	76	81
			Exposed	117	117	117	117	117	117	117	117	110	117	117	101	117	116	94	117	109	87	117	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	95	118	118	111	118	118	95	118	94	73	113	84	93	100	75	83
			Exposed	118	118	118	118	118	116	118	118	106	118	118	97	118	115	89	118	106	82	118	98	76	114	85	94	98	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	125*	129*	126*	115	129*	116	99	129*	103	86	125*	91	77	117	81	99	109	73	89
			Exposed	129*	129*	129*	129*	129*	129*	129*	129*	122*	129*	128*	116	129*	121*	107	129*	115	98	129*	107	90	125*	91	77	116	80	98	105	101	86	95	90	76	86	80	64	78	73	57
		27-45	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	124*	127*	127*	118*	127*	123*	112*	127*	118*	103	122*	106	89	111*	93	79	96	83	98	85	75	88	76	94	79	99	85	72
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	124*	127*	127*	118*	127*	123*	112*	127*	118*	103	122*	106	89	111*	93	79	96	83	98	85	75	88	76	94	79	99	85	72
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	107*	118*	118*	92	118*	106*	81	118*	94	73	113*	84	93	101	76	84
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	102*
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	82	100
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	95*	80*
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	101	115	114	91	115	103	82	115	94	75	109	86	93
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	108	115	115	115	100	115	115	94	115	104	82	115	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	113*	118*	118*	97	118*	112*	85	118*	98	76	116*	88	97	106*	79	88
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	114*	118*	118*	105*	118*	118*	96	118*	115*	89	118*	99	77	115*	87	96	102	77	84	90	97	76	80	87	64	73	79	57		
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	107*	111*	109*	91*	111*	94*	79	111*	82	101	110*	73	89	99*	94	80
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	107*	111*	109*	91*	111*	94*	79	111*	82	101	110*	73	89	99*	94	80
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	93*	104*	99*	84*
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	91*	104*	96*	81*	100*	86*	73	89*	78	92	80*	98	83
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	99	117	111	88	117	99	79	114	90	97	104	83	88	95	76	81
			Exposed	117	117	117	117	117	117	117	117	110	117	117	101	117	116	94	117	109	87	117	103	82	114	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	111	120*	120*	94	73	113	84	93	100	75	83	89	97	75			
			Exposed	120*	120*	120*	120*	120*	116*	120*	120*	106	120*	120*	97	120*	115*	89	120*	106	82	120*	98	76	114*	85	94	98	74	82	86	93	73	77	83	65	98	75	54	88	64	46
		20-27	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107*	118*	115*	98*	118*	107*	90	118*	91	77	116*	80	98	105*	101	86	95*	90	76	86	80	64	78	73	57
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107*	118*	115*	98*	118*	107*	90	118*	91	77	116*	80	98	105*	101	86	95*	90	76	86	80	64	78	73	57
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	103*	114*	114*	106*	89*	111*	93*	79	96*	83	98	85	75	88	76	94	79	99	85	72
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	106*	108*	108*	94*	108*	108*	84
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	107*	108*	108*	92*	108*	106*	81	108*	94*	73	108*	84	93	101*	76	84
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	86*	91*	91*	77*	91*	82*	100
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	80*
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	101	107	107	91	107	103	82	107	94	75	107	86	93
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	100	107	107	94	107	104	82	107	93	74	105	84	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	97*	108*	108*	85*	108*	98*	76	108*	87	97	106*	79	88
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	105*	108*	108*	108*	96*	108*	108*	89*	108*	99*	77	108*	87*	96	102*	77	84	90*	97	76	80	87	64	73	79	57		
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	81*	91*	86*	73*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	79*	91*	82*	101	91*	73*	89	91*	94	80	90*	85	72
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	84*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	73*	86*	78*	92	80*	99*	83
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	99	111	111	88	111	99	79	111	90	97	104	83	88	95	76	81
			Exposed	111	111	111	111	111	111	111	110	111	111	111	101	111	111	94	111	109	87	111	103	82	111	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	111*	115*	115*	95*	115*	108*	83	115*	94*	73	113*	84	93	100*	75	83			
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	106*	115*	115*	97*	115*	115*	89	115*	106*	82	115*	98*	76	114*	85	94	98*	74	82	86	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	99*	100*	100*	86*	100*	91*	77*	100*	81*	99	100*	73	89
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	98*	100*	100*	90*	100*	91*	77*	100*	80*	98	100*	101	86	95*	90	76	86*	80	64	78*	73	57
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	89*	94*	94*	94*	80*	94*	86*	73*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	89*	94*	93*	79*	94*	83*	98	85*	75*	88	76*	94	79	99	85	72

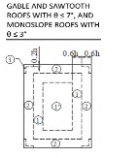
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

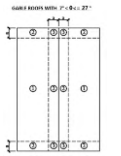
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

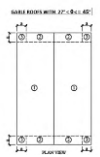
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

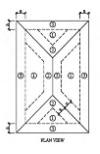












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

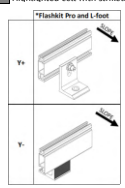
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	90
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	87	98	98	79	98	90	97	98	83	89
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	84*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	81*	94*	94*	73*	94*	84*	93	94*	76*	84
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	77*	78*	78*	100*
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	91	98	98	82	98	94	75	98	86	93
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	90	96	76	81	87	93	74	80	86	64
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	85*	94*	94*	76*	94*	88*	97	94*	79*	88
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	89*	94*	94*	77*	94*	94*	67*	94*	79	57	94*	73*	89
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	73*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	101*	78*	73*	89	78*	94*	80	78*	85	72
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	92*	73*	96*	83
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	88	103	99	79	103	90	97	103	83	88
			Exposed	103	103	103	103	103	103	103	103	103	103	103	101	103	103	94	103	103	87	103	103	103	103	103	82	103	91	98	102	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	95*	104*	104*	83*	104*	94*	73	104*	84*	93	100*	75	83
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	97*	104*	104*	89*	104*	104*	82*	104*	98*	76	104*	85*	94	98*	74	82	86*	93	73	77	83	61	98	75	54	88	64	46
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	77*	85*	81*	99*	85*	73*	89			
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	77*	85*	80*	98*	85*	101*	86	85*	90	76	85*	80	64
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	81*	81*	73*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	79*	81*	81*	98*	81*	75*	88	76*	94*	79
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	87	91	91	91	91	91	91	91	91	91
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*	82*	82*	73*	82*	82*	93	82*	76*	84
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	100*
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	82	91	91	75	91	86	93
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90	91	91	91	91	91	74	80	86	64
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	77*	82*	82*	96*	82*	77*	84	82*	97*	76	80*	87	64	73*	79	57
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	101*	67*	67*	89*	67*	94*	80*	67*	85*	72
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	92*	64*	96*	83*
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	88	96	96	81
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	87	96	96	82	96	91	98	96	82	87	92	74	78	84	89	71	77	82	69	94	76	54
		7-20	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	83*	90*	90*	73*	90*	84*	93	90*	75*	83
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	89*	90*	90*	82*	90*	90*	76*	90*	85*	94	90*	74	82	86*	93	73	77*	83	61	98	75	54	88	64	46
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	99*	74*	73*	89*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	101*	86*	74*	90	76	74*	98*	74*	73	57
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	98*	70*	70*	88*	70*	94*	79	99*	86*	72
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	79	86	86	97	86	83	89
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	93*	72*	72*	84*
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	75	86	86	93
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	74	86	84	90	86	76	81	86	93	74	80	86	64
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	96*	72*	72*	84*	72*	97*	76	72*	87*	64	72*	79	57
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	79	90	90	97	90	83	88	90	76	81
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	98*	90	82	87	90	74	78	84	89	71	87	90	74	82	89	69
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73*	79*	79*	93*	79*	75*	83	79*	97*	75
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	76*	79*	79*	94*	79*	74*	82	79*	83	61	98*	75	54	88	64	46
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	99*	66*	66*	89*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	99*	66*	66*	90	76*	66*	80*	66*	73	57
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	94*	62*	62*	88*	62*	94*	79*	94*	85*	72*

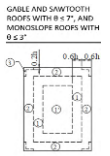
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

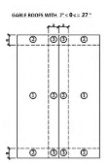
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

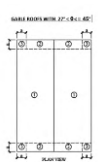
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

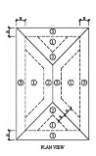












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

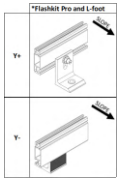
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	97	81	81	89			
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	93*	64*	64*	84*			
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*			
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*			
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81			
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	97*	64*	64*	88*			
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	87*	64*	79*	57			
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*			
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*			
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	98	85	82	87	85	74	78	84	89	~~71~~	77	82	~~69~~	94	76	~~54~~
		7-20	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	93*	71*	71*	83*	71*	97*	75			
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	94*	71*	71*	82*	71*	93*	73	71*	83*	~~61~~	98*	75	~~54~~	88*	~~64~~	~~48~~
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	76*	88*	80*	~~64~~	88*	73*	~~57~~
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	79*	84*	84*	72*
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	95	77	77	88			
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*			
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*			
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*			
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	93			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	90	77	77	74	77	77	90	77	76	81	77	93	74	77	86	~~64~~
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	85*	87*	87*	76*	87*	87*	~~64~~	87*	79*	~~57~~
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	79	81	81	97	81	81	88	81	76	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	98	81	81	87	81	74	78	81	89	~~71~~	77	82	~~69~~	94	76	~~54~~
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	93*	64*	64*	83*	64*	97*	75*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	94*	64*	64*	82*	64*	93*	73	64*	83*	~~61~~	97*	75*	~~54~~	88*	~~64~~	~~48~~
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	~~64~~	80*	73*	~~57~~
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	72*

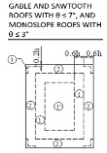
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

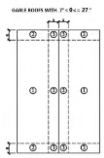
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

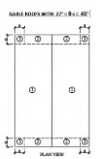
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

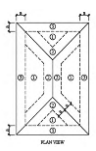












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

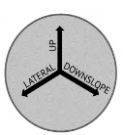
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

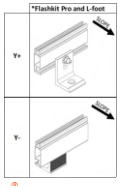
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	124	104	127	115	94	125	104	86	117	95	77	109	88	64	100	82	54			
			Exposed	127	127	127	127	127	121	127	127	115	127	125	106	127	119	99	127	115	93	127	108	88	118	96	79	108	87	62	97	80	50	90	66	42	83	56	37	74	47	49
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	116	127	124	100	127	114	90	127	100	82	117	91	68	106	84	55	96	74	45			
			Exposed	127	127	127	127	127	121	127	127	114	127	126	103	127	119	95	127	114	90	127	104	85	118	92	69	104	83	53	93	69	42	85	55	37	76	45	49	62	39	44
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	119	128	121	105	128	110	94	128	97	86	121	89	77	115	82	62			
			Exposed	128	128	128	128	128	128	128	128	128	128	128	121	128	126	114	128	120	104	128	114	97	128	98	86	120	88	75	111	80	58	99	63	46	92	51	39	85	42	35
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	127	129	128	117	129	119	105	126	110	95	117	99	87	106	92	81			
			Exposed	129	129	129	129	129	129	129	129	129	128	129	129	129	129	122	129	127	116	129	121	109	127	111	95	116	98	86	101	90	77	92	82	61	85	71	50	75	59	42
	C	0-7	Interior	127	127	127	127	127	124	127	127	118	127	127	112	127	123	103	127	117	96	127	112	91	121	99	82	113	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	127	122	102	127	116	95	127	109	89	122	101	83	117	95	76	111	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	127	127	127	127	127	124	127	127	117	127	127	109	127	123	99	127	117	93	127	110	88	122	95	76	111	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	127	123	99	127	115	91	127	105	85	123	97	79	117	91	67	109	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	124	128	128	118	128	124	110	128	118	100	128	102	90	124	91	81	115	83	64	104	70	50	95	56	41	88	46	37
			Exposed	128	128	117	128	122	108	128	115	97	128	105	91	128	96	85	123	91	80	118	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	125	129	129	119	129	125	114	129	115	99	120	102	89	108	93	82	96	85	67	88	77	55	81	64	45
			Exposed	129	129	125	129	129	118	129	122	110	129	116	100	125	109	94	119	101	89	113	95	84	96	86	68	87	75	53	77	60	42	60	49	37	49	41	49	41	37	44
	D	0-7	Interior	127	127	120	127	127	114	127	124	104	127	118	97	127	112	91	125	105	86	120	98	81	110	89	65	98	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	127	112	91	124	103	85	118	96	78	112	90	67	104	85	58	97	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	127	127	120	127	127	112	127	124	100	127	117	93	127	110	88	127	100	82	121	94	74	107	85	56	94	71	43	86	56	37	76	45	49	61	39	43	50	52	38
			Exposed	127	109	87	125	99	81	118	92	69	110	86	58	100	81	49	94	69	42	88	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	128	128	128	128	128	126	128	128	119	128	124	111	128	118	100	128	110	94	128	101	89	122	90	78	113	81	59	100	64	46	92	51	39	85	42	35	77	37	46
			Exposed	128	117	100	128	108	93	128	98	86	123	91	81	118	85	68	112	80	58	104	69	50	92	52	40	84	41	51	72	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	129	129	129	129	129	129	129	126	120	129	125	114	129	119	105	129	114	98	118	100	88	103	91	79	93	83	62	85	71	50	74	58	42	60	49	37			
			Exposed	129	124	114	129	118	103	126	111	95	119	102	89	113	95	84	102	90	77	95	85	67	85	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	117	119	119	104	119	104	86	117	95	77	109	88	64	100	82	54			
			Exposed	119	119	119	119	119	119	119	119	115	119	119	106	119	119	96	119	119	93	119	108	88	118	96	79	108	87	62	97	80	50	79	66	42	83	56	37	74	47	43
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	116	119	119	100	119	114	90	119	100	82	117	91	68	106	84	55	96	74	45
			Exposed	119	119	119	119	119	119	119	119	114	119	119	103	119	119	95	119	114	90	119	104	85	118	92	69	104	83	53	93	69	42	85	55	37	76	45	49	62	39	44
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	119	124	121	105	124	110	94	124	97	86	121	89	77	115	82	62
			Exposed	124	124	124	124	124	124	124	124	124	124	124	121	124	124	114	124	120	104	124	114	97	124	98	86	120	88	75	111	80	58	99	63	46	92	51	39	85	42	35
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	117	127	119	105	126	110	95	117	99	87	106	92	81			
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	116	127	121	109	127	111	95	116	98	86	101	90	77	92	82	61	85	71	50	75	59	42
	C	0-7	Interior	119	119	119	119	119	119	119	119	118	119	119	112	119	119	103	119	117	96	119	112	91	119	99	82	113	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	119	119	102	119	116	95	119	109	89	119	101	83	117	95	76	111	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	119	119	119	119	119	119	119	119	117	119	119	109	119	119	99	119	117	93	119	110	88	119	95	76	111	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	119	119	99	119	115	91	119	105	85	119	97	79	117	91	67	109	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	118	124	124	110	124	118	100	124	102	90	124	91	81	115	83	64	104	70	50	95	56	41	88	46	37
			Exposed	124	124	117	124	122	108	124	115	97	124	105	91	124	96	85	123	91	80	118	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	114	127	115	99	120	102	89	108	93	82	96	85	67	88	77	55	81	64	45			
			Exposed	127	127	125	127	127	118	127	122	110	127	116	100	125	109	94	119	101	89	113	95	84	96	86	68	87	75	53	77	60	42	60	49	37	49	41	49	41	37	44
	D	0-7	Interior	119	119	119	119	119	114	119	119	104	119	118	97	119	112	91	119	105	86	119	98	81	110	89	65	98	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	119	112	91	119	103	85	118	96	78	112	90	67	104	85	58	97	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	119	119	119	119	119	119	119	119	117	119	119	100	119	117	93	119	110	88	119	95	76	107	85	56	94	71	43	86	56	37	76	45	49	61	39	43	50	52	38
			Exposed	119	109	87	119	99	81	118	92	69	110	86	58	100	81	49	94	69	42	88	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	126	126	126	126	126	126	126	126	119	126	124	111	126	118	100	126	110	94	126	101	89	122	90	78	113	81	59	100	64	46	92	51	39	85	42	35	77	37	46
			Exposed	126	117	100	126	108	93	126	98	86	123	91	81	118	85	68	112	80	58	104	69	50	92	52	40	84	41	51	72	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	128	128	128	128	128	128	128	128	126	128	128	120	128	125	114	128	119	105	128	114	98	118	100	88	103	91	79	93	83	62	85	71	50	74	58	42	60	49	37
			Exposed	128	124	114	128	118	103	126	111	95	119	102	89	113	95	84	102	90	77	95	85	67	85	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	103	105	105	96	105	105	91	105	99	82	105	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	105	105	102	105	105	95	105	105	89	105	101	83	105	95	76	105	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	95	76	105	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	105	105	99	105	105	91	105	105	85	105	97	79	105	91	67	105	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	100	117*	91	81	115*	83	64	104	70	50	95	56	41
			Exposed	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	111*	95	112*	98	86	102*	90	77	92	82	61	85	71	50	75	59	42
	C	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	103	105	105	96	105	105	91	105	99	82	105	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	105	105	102	105	105	95	105	105	89	105	101	83	105	95	76	105	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	95	76	105	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	105	105	99	105	105	91	105	105	85	105	97	79	105	91	67	105	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	110	117*	117*	100	117*	102	90	117*	91	81	115*	83	64	104	70	50	95	56	41	88	46	37
			Exposed	117*	117*	117*	117*	117*	108	117*	115*	97	117*	105	91	117*	96	85	117*	91	80	117*	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	99	112*	102*	89	108*	93	82	96	85	67	88	77	55	81	64	45
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	110*	112*	112*	100	112*	112*	94	112*	102*	89	112*	95	84	96	86	68	87	75	53	77	60	42	60	49	37	49	41	49	41	37	44
	D	0-7	Interior	105	105	105	105	105	105	105	105	104	105	105	97	105	105	91	105	105	86	105	98	81	105	89	65	98	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	105	105	91	105	103	85	105	96	78	105	90	67	104	85	58	97	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	105	105	105	105	105	105	105	105	100	105	105	93	105	105	88	105	100	82	105	94	74	105	85	56	94	71	43	86	56	37	76	45	49	61	39	43	50	52	38
			Exposed	105	105	87	105	99	81	105	92	69	105	86	58	100	81	49	94	69	42	88	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	111	117	117	100	117	110	94	117	101	89	117	90	78	113	81	59	100	64	46	92	51	39	85	42	35	77	37	46
			Exposed	117	117	100	117	108	93	117	98	86	117	91	81	117	85	68	112	80	58	104	69	50	92	52	40	84	41	51	72	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	105	116*	114*	98	116*	100	88	103	91	79	93	83	62	85	71	50	74	58	42	60	49	37
			Exposed	116*	116*	114*	116*	116*	103	116*	111*	95	116*	102	89	113*	95	84	102	90	77	95	85	67	85	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37

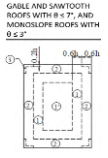
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

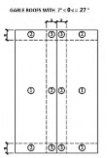
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

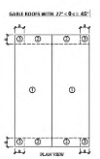
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

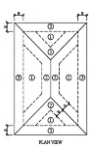












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

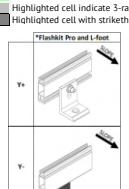
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	86	94	94	77	94	94	88	64	94	82	54
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	79	94	87	62	94	80	50	90	66	42	83	56	37	74	47	49
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	100*	102*	102*	102*	82	102*	91	68	102*	84	55	94	74	45
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	90	102*	102*	85	102*	92	69	102*	83	53	93	69	42	85	55	37	76	45	49	62	39	44
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	94*	95*	95*	86*	95*	89*	77	95*	82*	62
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	86*	95*	88*	75	95*	80	58	95*	63	46	92*	51	39	85*	42	35
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	87*	89*	89*	81*	89*	89*	81*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	89*	89*	77*	89*	89*	82*	61	85*	71	50	76*	59	42
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	82	94	90	68	94	83	55	93	72	45	86	60	39	80	51	35
			Exposed	94	94	94	94	94	94	94	94	89	94	94	83	94	94	76	94	90	66	94	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	99*	102*	102*	93	102*	102*	88	102*	94	76	102*	86	58	94	76	46	89	60	39	82	49	52	68	41	46
			Exposed	102*	102*	99*	102*	102*	102*	85	102*	94	79	102*	91	67	102*	85	57	100*	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30			
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	91*	81*	95*	83*	64	95*	70	50	95*	56	41	88*	46	37
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	91*	95*	95*	85*	95*	91*	80	95*	85*	69	95*	71	51	94*	54	41	86*	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	82*	89*	85*	67	88*	77*	55	81*	64	45			
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	68	87*	76*	53	77*	60	42	60	49	37	49	41	49	41	37	44		
	D	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	86	94	94	81	94	89	65	94	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	94	94	91	94	94	85	94	94	78	94	90	67	94	85	58	94	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	82	94	94	74	94	85	56	94	71	43	86	56	37	76	45	49	61	39	43	50	52	38		
			Exposed	94	94	87	94	94	81	94	92	69	94	86	58	94	81	49	94	69	42	88	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	100*	104*	104*	94*	104*	101*	89*	104*	90*	78	104*	81	59	100*	64	46	92*	51	39	85	42	35	77	37	46
			Exposed	104*	104*	100*	104*	104*	93*	104*	98*	86	104*	91*	81	104*	85	68	104*	80	58	104*	69	50	92*	52	40	84	41	51	72	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	88*	96*	91*	79	93*	83*	62	85*	71	50	74	58	42	60	49	37
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	95*	96*	96*	89*	96*	95*	84*	96*	90*	77	95*	85*	67	85*	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	77	90	88	64	90	82	54
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	79	90	87	62	90	80	50	90	66	42	83	56	37	74	47	49
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	82*	91*	91*	68	91*	84*	55	91*	74	45
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	85*	91*	91*	69	91*	83*	53	91*	69	42	85*	55	37	76	45	49	62	39	44
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63*	46	75*	51	39	75*	42	35
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	50	70*	59	42
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	82	90	90	68	90	83	55	90	72	45	86	60	39	80	51	35
			Exposed	90	90	90	90	90	90	90	90	89	90	90	83	90	90	76	90	90	66	90	85	58	90	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	88*	91*	91*	76	91*	76	46	89*	60	39	82*	49	52	68	41	46			
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	85*	91*	91*	79*	91*	91*	67	91*	85*	57	91*	81*	49	89*	61	39	81*	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	70*	50	75*	56	41	75*	46	37
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	71*	51	75*	54	41	75*	43	35	75*	37	47	64*	50	41	53	44	37
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	68*	70*	70*	53	70*	60*	42	61*	49	37	49	41	49	41	37	44
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	93	93	91	93	93	86	93	93	81	93	89	65	93	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	93	93	91	93	93	85	93	93	78	93	90	67	93	85	58	93	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	93*	97*	97*	88*	97*	97*	82	97*	94*	74	97*	85*	56	94*	71	43	86*	56	37	76	45	49	61	39	43	50	52	38
			Exposed	97*	97*	87*	97*	97*	81	97*	92	69	97*	86*	58	97*	81	49	94*	69	42	88*	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	78*	82*	81*	59	82*	64	46	82*	51	39	82*	42	35	77*	37	46
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*	82*	82*	68	82*	80*	58	82*	82*	69*	50	82*	52	40	82*	41	51	72*	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	62	76*	71*	50	74*	58	42	60	49	37
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	67*	76*	72*	51	72*	57	41	56	46	35	44	39	47	38	52	41	51	46	37
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	77	84	84	64	84	82	54
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	79	84	84	62	84	80	50	84	66	42	83	56	37	74	47	49
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	68*	74*	74*	55	74*	74*	45
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*	74*	74*	53	74*	69*	42	74*	55	37	74*	45	49	62	39	44
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	58*	61*	61*	46	61*	51	39	61*	42	35			
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	50*	58*	58*	42
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	68	84	83	55	84	72	45	84	60	39	80	51	35
			Exposed	84	84	84	84	84	84	84	84	84	84	84	83	84	84	76	84	84	66	84	84	58	84	73	45	84	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	60	74*	49	52	68*	41	46
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	67*	74*	74*	57	74*	74*	49	74*	61	39	74*	47	51	63*	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	50	61*	56*	41	61*	46	37
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	54*	61*	43	35	61*	37	47	61*	50	41	53*	44	37
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	55*	58*	58*	45			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	53*	58*	58*	42	58*	49*	37	49*	41	49	41	37	44
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	81	87	87	65	87	81	52	87	67	42	83	56	37	73	47	49	62	41	43
			Exposed	87	87	87	87	87	85	87	87	78	87	87	67	87	85	58	87	80	51	87	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	74*	82*	82*	56	82*	71*	43	82*	56	37	76*	45	49	61	39	43	50	52	38
			Exposed	82*	82*	82*	82*	82*	81*	82*	82*	69*	82*	82*	58	82*	81*	49	82*	69*	42	82*	60	39	78*	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	59*	67*	64*	46	67*	51	39	67*	42	35	67*	37	46
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	59*	67*	52	40	67*	47	39	49	41	34	41	37	31
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	50	63*	58*	42	60*	49	37
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	51	63*	57*	41	56*	46	35	44	39	47	38	52	41	51	46	37

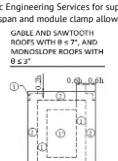
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

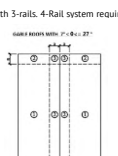
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

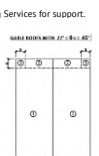
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

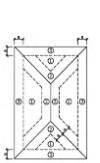












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

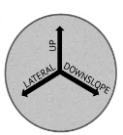
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

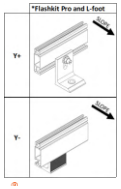
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

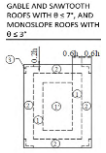
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

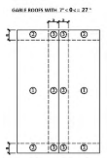
10 Highlighted cell indicates 3-rail system span. Contact Unirac Engineering Services for support.

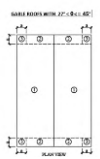
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

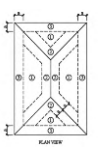












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

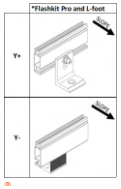
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	54
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	50	63	63	42	63	56	37	63	47	49
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	37*	43*	43*	49	43*	39*	44
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	45	63	60	39	63	51	35
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	63	63	63	63	63	59	38	63	48	50	62	41	44	52	36	39	44	48	84
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	52	43*	41*	46
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	43*	43*	43*	44	43*	52	39	42*	46	84	37*	41	80
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	47*	36*	50*	41	36*	44	37
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	49	34*	34*	44*
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	52	67	67	42	67	56	37	67	47	49	62	41	43
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	67	51	67	67	45	67	57	37	67	46	48	58	39	42	48	51	37	41	45	92	36	40	29			
		7-20	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	47*	37	47*	45*	49	47*	39	43	47*	52	38
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	39	47*	45*	50	47*	38	43	47*	50	37	39	43	92	35	38	29	46	94	25			
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	37*	46
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	51*	39*	36*	44	39*	47	39	39*	41	94	39*	37	91			
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*	37*	37*	47	37*	52*	41	52*	46	37
100	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	42	60	56	37	60	47	43
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	39*	39*	49	39*	39*	44
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	45	60	60	39	60	51	35
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	45	60	59	38	60	48	50	60	41	44	52	36	39	44	48	84			
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	52*	39*	39*	46
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	51*	39*	39*	44	39*	52*	39	39*	46	94	37*	41	90			
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	41*	48*	44*	37
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	52	63	63	42	63	56	37	63	47	49	62	41	43
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	51	63	63	45	63	57	37	63	46	48	58	39	42	48	51	37	41	45	92	36	40	29			
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	43*	49	43*	39*	43	43*	52	38
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	50	43*	38*	43	43*	50	37	39*	43	92	35	38	29	46	94	25			
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	51*	36*	36*	44	36*	47*	39	36*	41	94	36*	37	91			
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	47*	34*	52*	41	51*	46*	37

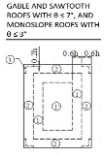
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

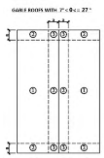
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

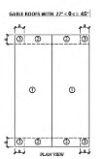
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

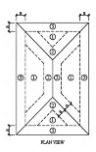












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

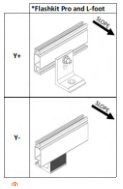
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	137	150	144	127	150	135	119	148	127	111	139	120	100	132	114	91
			Exposed	150	150	150	150	150	150	150	150	146	150	150	139	150	150	132	150	144	127	150	138	121	149	128	112	138	119	99	129	111	88	121	100	80	115	92	62	106	84	90
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	151	128	151	138	118	151	128	108	145	120	96	135	113	86
			Exposed	151	151	151	151	151	151	151	151	150	151	151	141	151	151	134	151	149	127	151	142	121	151	129	109	143	119	94	132	108	83	122	96	62	114	85	95	103	66	85
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	145	151	151	145	151	148	133	151	136	123	151	127	115	146	119	104
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	136	151	137	124	151	126	114	143	116	100	134	104	88	126	93	69	119	83	59
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	141	152	142	131	152	134	123	146	126	116
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	144	152	143	132	152	122	142	124	114	132	116	101	123	107	90	115	97	82	
	C	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	143	150	150	136	150	147	130	150	141	125	150	131	115	142	122	103	132	115	92	124	105	83	118	95	66	111	88	58
			Exposed	150	150	136	150	146	128	150	139	122	150	132	116	147	126	110	141	121	102	135	117	95	125	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	151	131	151	146	125	151	133	114	148	122	99	136	114	87	126	100	67	118	90	58	108	81	89
			Exposed	151	151	138	151	151	129	151	143	122	151	135	116	151	128	107	147	122	98	139	116	90	127	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	142	128	151	130	118	147	120	105	138	110	92	129	97	82	122	87	62
			Exposed	151	151	151	151	151	147	151	151	137	151	144	130	151	136	123	151	129	117	151	123	110	138	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	147	136	152	136	125	147	127	117	136	119	106	126	112	95	118	101	86
			Exposed	152	152	152	152	152	152	152	152	145	152	149	137	152	142	130	152	135	124	151	130	119	137	120	107	125	110	93	116	98	83	103	88	62	91	79	94	82	62	85
	D	0-7	Interior	150	150	150	150	150	145	150	150	137	150	148	130	150	141	125	150	135	119	150	130	114	140	121	101	130	112	90	122	101	80	115	92	62	106	84	90	97	72	82
			Exposed	150	141	124	150	134	118	148	127	112	141	122	103	135	117	95	129	111	89	124	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	151	151	151	151	151	148	151	151	139	151	151	131	151	146	125	151	146	125	151	139	119	151	132	113	146	121	97	123	96	63	114	85	95	102	65	85	91	58	65
			Exposed	151	146	124	151	137	117	151	129	109	148	122	99	139	116	90	132	109	83	126	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	148	133	151	141	127	151	128	116	144	118	101	134	105	88	126	93	69	118	83	58	111	62	91
			Exposed	151	151	141	151	146	132	151	137	124	151	129	117	151	123	110	143	117	100	137	110	92	126	93	73	118	81	57	107	60	87	96	92	66	87	82	58	79	62	51
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	141	152	146	135	152	134	124	144	125	114	132	117	101	123	107	90	115	96	81	102	88	62
			Exposed	152	152	148	152	151	139	152	143	132	152	136	125	151	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	60	86	66	90	65	58	81	57	87	62
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	141	141	127	141	135	119	141	127	111	139	120	100	132	114	91
			Exposed	141	141	141	141	141	141	141	141	141	141	141	139	141	141	141	141	141	132	141	141	127	141	138	121	141	128	112	138	119	99	129	111	88	112	100	80	115	92	62
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	139	141	141	128	141	138	118	141	128	108	141	120	96	135	113	86
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	127	141	141	121	141	129	109	141	119	94	132	108	83	122	96	62	114	85	95	103	66	85
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	147	147	133	147	136	123	147	127	115	146	119	104
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	69	119	83	59
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	132	151	122	142	124	114	132	116	101	123	107	90	115	97	82	
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	125	141	131	115	141	122	103	132	115	92	124	105	83	118	95	66	111	88	58
			Exposed	141	141	136	141	141	128	141	139	122	141	132	116	141	126	110	141	121	102	135	117	95	125	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	125	141	133	114	141	122	99	136	114	87	126	100	67	118	90	58	108	81	89
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
			Exposed	147	147	147	147	147	147	147	147	137	147	144	130	147	136	123	147	129	117	147	123	110	138	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	147	136	151	136	125	147	127	117	136	119	106	126	112	95	118	101	86
			Exposed	151	151	151	151	151	151	151	151	145	151	149	137	151	142	130	151	135	124	151	130	119	137	120	107	125	110	93	116	98	83	103	88	62	91	79	94	82	62	85
	D	0-7	Interior	141	141	141	141	141	141	141	141	137	141	141	130	141	141	125	141	135	119	141	130	114	140	121	101	130	112	90	122	101	80	115	92	62	106	84	90	97	72	82
			Exposed	141	141	124	141	134	118	141	127	112	141	122	103	135	117	95	129	111	89	124	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	141	141	141	141	141	139	141	141	139	141	141	131	141	141	125	141	141	125	141	139	119	141	132	113	141	121	97	123	96	63	114	85	95	102	65	85	91	58	65
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
			Exposed	147	147	147	147	147	147	147	147	137	147	144	130	147	136	123	147	129	117	147	123	110	138	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	147	136	151	136	125	147	127	117	136	119	106	126	112	95	118	101	86
			Exposed	151	151	151	151	151	151	151	151	145	151	149	137	151	142	130	151	135	124	151	130	119	137	120	107	125	110	93	116	98	83	103	88	62	91	79	94	82	62	85
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	127	111	127	120	100	127	114	91
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	121	127	127	112	127	119	99	127	111	88	121	100	80	115	92	62	106	84	90
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	128	108	128	120	96	128	113	86
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	121	128	128	109	128	119	94	128	108	83	122	96	62	114	85	95	103	66	85
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	136	123	136	127	115	136	119	104
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	124	136	126	114	136	116	100	134	104	88	126	93	69	119	83	59
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	131	141	134	123	141	126	116
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	132	141	133	122	141	124	114	132	116	101	123	107	90	115	97	82
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	115	127	122	103	127	115	92	124	105	83	118	95	66	111	88	58
			Exposed	127	127	127	127	127	127	127	127	122	127	127	116	127	126	110	127	121	102	127	117	95	125	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	114	128	122	99	128	114	87	126	100	67	118	90	58	108	81	89
			Exposed	128	128	128	128	128	128	128	128	122	128	128	116	128	128	107	128	122	98	128	116	90	127	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	128	136	130	118	136	120	105	136	110	92	129	97	82	122	87	62
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	123	136	129	117	136	123	110	136	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	136	125	141	127	117	136	119	106	126	112	95	118	101	86
			Exposed	141	141	141	141	141	141	141	141	137	141	141	130	141	135	124	141	130	119	137	120	107	125	110	93	116	98	83	103	88	62	91	79	94	82	62	85			
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	125	127	127	119	127	127	114	127	121	101	127	112	90	122	101	80	115	92	62	106	84	90	97	72	82			
			Exposed	127	127	124	127	127	118	127	127	112	127	122	103	127	117	95	127	111	89	124	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	119	128	128	113	128	121	97	128	110	84	123	96	63	114	85	95	102	65	85			
			Exposed	128	128	124	128	128	117	128	128	109	128	122	99	128	116	90	128	109	83	126	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	133	138	138	127	138	128	116	138	118	101	134	105	88	126	93	69	118	83	58	111	62	91
			Exposed	138	138	138	138	138	132	138	137	124	138	129	117	138	123	110	138	117	100	137	110	92	126	93	73	118	81	57	107	60	87	96	92	66	87	82	58	79	62	51
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	141	143	143	135	143	134	124	142	125	114	132	117	101	123	107	90	115	96	81	102	88	62
			Exposed	143	143	143	143	143	139	143	143	132	143	136	125	143	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	60	86	66	90	65	58	81	57	87	62

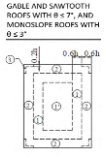
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

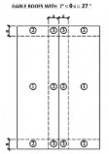
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

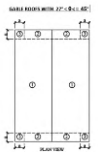
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

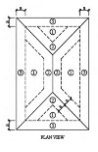












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

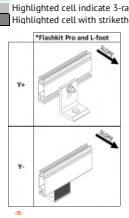
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	100	118	114	91
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	99	118	111	88	118	100	80	115	92	62	106	84	90
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	118	119	119	108	119	119	96	119	113	86
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	83	119	96	62	114	85	95	103	66	85
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	123	128	127	115	128	119	104
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	124	128	128	114	128	116	100	128	104	88	126	93	69	119	83	59
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	123*	124*	124*	116
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122	124*	124*	114	124*	116	101	123*	107	90	115	97	82
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	115	118	118	103	118	115	92	118	105	83	118	95	66	111	88	58
			Exposed	118	118	118	118	118	118	118	118	118	116	118	118	110	118	118	102	118	117	95	118	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	119	99	119	114	87	119	100	67	118	90	58	108	81	89
			Exposed	119	119	119	119	119	119	119	119	119	116	119	119	107	119	119	98	119	116	90	119	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	128	120	105	128	110	92	128	97	82	122	87	62
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	123	128	128	117	128	123	110	128	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	117	124*	119	106	124*	112	95	118	101	86
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119	124*	120	107	124*	110	93	116	98	83	103	88	62	91	79	94	82	62	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	112	90	118	101	80	115	92	62	106	84	90	97	72	82
			Exposed	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	113	119	119	97	119	110	84	119	96	63	114	85	95	102	65	85
			Exposed	119	119	119	119	119	117	119	119	109	119	119	99	119	116	90	119	109	83	119	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	127	130	128	116	130	110	105	88	126	93	69	118	83	58	111	62	91
			Exposed	130	130	130	130	130	130	130	124	130	129	117	130	123	110	130	117	100	130	110	92	126	93	73	118	81	57	107	60	87	96	92	66	87	82	58	79	62	51
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	124	129	117	101	123	107	90	115	96	81	102	88	62
			Exposed	129	129	129	129	129	129	129	129	129	125	129	129	119	129	124	114	129	119	105	123	108	91	113	95	80	98	85	60	86	66	90	65	58	81	57	87	62
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	100	115	114	91
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	111	115	115	88	115	112	88	115	99	80	115	92	62	106	84	90
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	108	116	116	96	116	113	86
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	109	116	116	94	116	108	83	116	96	62	114	85	95	103	66	85
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104	88	114*	93	69	114*	83	59
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	90	110*	97	82
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	103	115	115	92	115	105	83	115	95	66	111	88	58
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	102	115	115	95	115	105	84	115	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	114	116	116	99	116	114	87	116	100	67	116	90	58	108	81	89
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	107	116	116	98	116	116	90	116	101	70	116	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	105*	114*	110*	92	114*	97	82	114*	87	62
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	110*	114*	112*	93	114*	96	81	114*	84	59	112*	63	91	101	96	82	92	87	62
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	95	110*	101*	86
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	110*	110*	93	110*	98*	83	103*	88	62	91	79	94	82	62	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	112	90	118	101	80	115	92	62	106	84	90	97	72	82
			Exposed	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	113	118	118	97	118	110	84	118	96	63	114	85	95	102	65	85
			Exposed	118	118	118	118	118	117	118	118	109	118	118	99	118	116	90	118	109	83	118	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	116*	119*	118*	101	119*	105	88	119*	93	69	118*	83	58
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	117*	119*	119*	110	119*	117*	100	119*	110	92	119*	93	73	118*	81	57	107	60	87	96	92	66	87	82	58	79	62	51
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	101	115*	115*	101	115*	107*	90
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	105	115*	108*	91	113*	95	80	98	85	60	86	66	90	65	58	81	57	87	62
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	100	108	108	91
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	99	108	108	88	108	100	80	108	92	62	106	84	90
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	108*	113*	113*	96	113*	113*	86
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	109*	113*	113*	94	113*	108*	83	113*	96	62	113*	85	95	103	66	85
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	100*	102*	102*	88*	102*	93*	69	102*	83	59
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	82*
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	103	108	108	92	108	105	83	108	95	66	108	88	58
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	102	108	108	95	108	105	84	108	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	99	113*	113*	87	113*	100	67	113*	90	58	108*	81	89
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	107*	113*	113*	98	113*	113*	90	113*	101	70	113*	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	92*	102*	97*	82	102*	87*	62
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	92*	102*	97*	82	102*	87*	62
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	95*	96*	96*	86*
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	93*	96*	96*	81	102*	84	59	102*	63	91	101*	96	82
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	101	112	112	90	112	101	80	112	92	62	106	84	90	97	72	82
			Exposed	112	112	112	112	112	112	112	112	112	103	112	112	95	112	111	89	112	112	92	63	104	83	112	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	113	116*	116*	97	116*	110	84	116*	96	63	112	85	95	102	65	85	91	58	65
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	109	116*	116*	99	116*	116*	90	116*	109	83	116*	100	65	115*	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	101*	108*	105*	88	108*	93	69	108*	83	58	108*	62	91
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	100*	108*	108*	92	108*	93	73	108*	81	57	107*	60	87	96*	92	66	87	82	58	79	62	51
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	101*	105*	105*	90*	105*	96*	81	102*	88	62
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	91*	105*	95*	80	98*	85	60	86	66	90	65	58	81	57	87	62

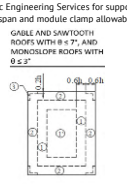
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

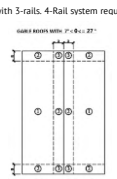
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

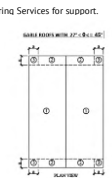
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

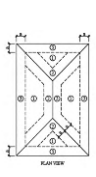












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

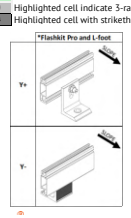
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	91
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	88	99	99	80	99	92	62	99	84	90
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	96*	105*	105*	86
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	94*	105*	105*	83	105*	96*	62	105*	85	95
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	69	87*	83*	59
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	92	99	99	83	99	95	66	99	88	58
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	95	99	99	84	99	94	64	99	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	87	105*	100*	67	105*	90*	58	104*	81	89
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	98*	105*	105*	90*	105*	104*	70	105*	86	98	104*	70	86	92*	58	65	82	89	57	62	80	54
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	62
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	59	87*	87*	63	91	87*	96	82	87*	87	62
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	62	82*	79*	54	82*	62	85
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	101	104	104	90	104	101	80	104	92	62	104	84	90	97	72	82
			Exposed	104	104	104	104	104	104	104	104	104	104	104	103	104	104	95	104	104	89	104	104	83	104	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	84	110*	96	63	109*	85	95	102*	65	85	91	58	65
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	109*	110*	110*	99*	110*	110*	90	110*	109*	83	110*	100*	65	110*	86	95	100*	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	93*	69	95*	83*	58	95*	62	91
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	92*	95*	93*	73	95*	81*	57	95*	60	87	95*	92	66	87*	82	58	79	62	51
		27-45	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	81*	90*	88*	62
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	80*	90*	85*	60	86*	66	90	65	58	81	57	87	62
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	91
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	80	92	92	62	92	84	90
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	86*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	83*	91*	91*	62	91*	85*	95
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	75*	59
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	83	92	92	66	92	88	58
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	84	92	92	64	92	85	91	92	84	73	83	89	61	65	82	87	58
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	87*	91*	91*	67	91*	90*	58	91*	81*	89
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	70	91*	88*	98	91*	70	86	91*	58	65	82*	89	57	62	80	54
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	59	75*	63	91	75*	96*	82	75*	87	62
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	63*	71*	71*	94*	71*	62*	85
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	92	62	97	84	90	97	72	82
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	95	97	97	89	97	97	83	97	97	92	63	97	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	97*	100*	100*	84	100*	96*	63	100*	85*	95
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	99*	100*	100*	90*	100*	100*	83	100*	100*	65	100*	86*	95	100*	64	83	88*	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	69	83*	83*	58	83*	62	91
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*	83*	60	87	83*	92	66	83*	81*	57	83*	82*	58	79*	62	51
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	62
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	60	78*	67*	90	65	58	81
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	90
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	59*
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	87	66	87	87	58
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	64	87	85	91	87	73	83	87	61	65
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	70*	80*	80*	98	80*	70*	86	80*	58	65	80*	89	57	62	80	54
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90	91	91	80	91	91	62	91	84	90	91	72	82
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	83	91	91	89	91	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	63	88*	85*	95	88*	65	85	88*	58	65
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	95	88*	64	83	88*	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69*	73*	73*	58	73*	62*	91
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	60	87	73*	73*	92	66	73*	82	58	73*	62	51
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	62*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	60*	69*	66*	90*	65*	58	81	57	87	62

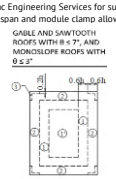
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

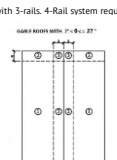
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

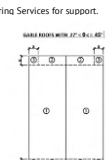
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

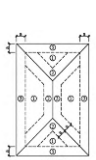












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

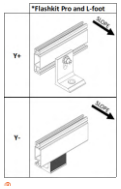
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	62	82	82	90		
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	62*	72*	72*	95*	72*	66*	85		
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	66	82	82	58		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	64	82	82	91	82	73
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	67*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	98*	72*	70*	86	72*	58
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	80	86	86	62	86	84	90	86	72	82
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	63	86	83	89	86	66	79	85	91	61	74	83	54	61	70	46
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	63	79*	79*	95	79*	65	85	79*	58	65
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	65	79*	79*	95	79*	64	83	79*	95	62	69*	85	54	58	64	46	90	57	43
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	58*	66*	62*	91*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	57*	66*	60*	87*	66*	92*	66	66*	82	58	66*	62	51
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	62*	90*	62*	58*	81*	57*	87*	62
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	90
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	95*	65*	85*
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	66	78	78	58		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	64	78	78	91	78	73
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	58*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	97*	65*	65*	86*	65*	58*	65	65*	89*	57	62*	80	51
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	62
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	82	82	82	82	82	82	62	82	82	90	82	72	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	63	82	82	89	82	66	79	82	91	61	74	83	54	61	70	46
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	63*	72*	72*	95*	72*	65*	85	72*	58	65
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	65*	72*	72*	95*	72*	64*	83	72*	95*	62	69*	85	54	58	64	46	90	57	43
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	89*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	59*	87*	59*	89*	66	59*	82*	58	59*	62	51
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	81*	85*	85*	62

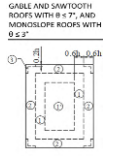
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

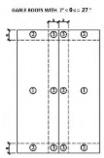
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

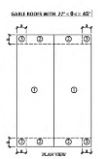
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

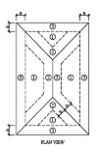












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

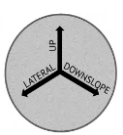
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

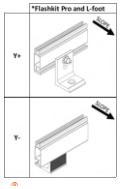
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	118	120	120	114	120	120	108	120	115	97	120	105	87	116	96	80	108	89	65	100	82	53	93	71	45
			Exposed	120	120	118	120	120	112	120	120	105	120	116	98	120	111	92	120	104	87	118	99	82	109	89	66	99	81	52	90	67	42	83	56	35	73	47	46	62	40	41
		7-20	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	118	120	120	113	120	120	106	120	115	94	120	104	85	116	94	72	107	86	57	98	77	46	90	62	38
			Exposed	120	120	117	120	120	111	120	120	103	120	116	96	120	110	90	120	103	84	118	97	78	108	86	58	97	74	44	88	58	35	80	46	46	64	37	41	52	49	36
		20-27	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	119	121	120	109	121	111	98	121	100	88	119	91	81	113	84	64	104	73	52			
			Exposed	121	121	121	121	121	121	121	121	117	121	121	111	121	116	103	121	110	97	121	103	91	120	92	81	111	83	62	101	67	48	93	53	38	86	43	49	79	35	44
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	116	121	118	107	121	110	97	115	100	89	107	93	82	98	86	69
			Exposed	121	121	121	121	121	121	121	121	121	121	121	118	121	121	113	121	117	106	121	113	100	116	101	89	105	92	81	95	84	64	87	72	51	79	59	42	63	49	35
	C	0-7	Interior	120	120	120	120	120	115	120	120	109	120	119	102	120	114	95	120	108	90	120	102	85	113	92	72	102	84	56	93	73	46	86	60	37	79	50	49	67	43	44
			Exposed	120	114	95	120	107	89	119	100	83	114	93	74	108	88	64	101	83	55	96	77	49	87	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	120	120	120	120	120	115	120	120	107	120	119	100	120	114	93	120	107	87	120	100	82	113	90	64	101	81	49	91	63	38	83	50	49	71	41	43	57	34	38
			Exposed	120	114	93	120	105	86	119	97	80	114	91	66	107	85	56	100	80	48	94	68	41	84	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	121	121	121	121	121	121	121	121	120	121	121	115	121	119	108	121	114	101	121	108	95	121	96	84	115	86	69	105	75	53	96	58	42	89	47	35	82	38	46
			Exposed	121	119	107	121	113	99	121	104	92	121	97	86	119	91	80	114	85	67	108	80	57	97	59	43	88	45	34	80	36	44	65	47	39	53	41	34	45	37	31
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	116	121	120	110	121	116	103	119	105	93	110	95	84	99	87	70	90	79	56	83	65	46	70	54	38
			Exposed	121	121	115	121	119	108	121	114	101	120	106	94	115	100	88	109	94	83	102	89	76	91	80	57	82	63	44	65	50	35	51	41	47	41	34	41	34	46	37
	D	0-7	Interior	120	120	111	120	120	103	120	115	96	120	109	90	120	102	85	116	96	80	112	91	70	101	83	54	91	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	120	102	85	115	95	77	109	89	65	102	84	56	96	77	48	91	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	120	120	110	120	120	101	120	115	94	120	107	88	120	100	82	116	94	73	111	89	62	99	78	46	89	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	120	100	82	115	93	70	108	86	57	100	81	48	94	68	41	88	58	35	83	50	49	65	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	121	121	121	121	121	116	121	120	109	121	114	101	121	107	95	121	101	89	121	95	83	113	84	66	103	69	50	93	54	39	86	43	49	78	35	44	64	47	39
			Exposed	121	107	94	121	99	87	119	92	81	114	86	68	108	80	57	102	68	49	96	58	42	86	43	50	76	34	43	60	45	37	49	39	33	41	35	29	44	32	26
		27-45	Interior	121	121	121	121	121	121	121	121	116	121	120	110	121	115	103	121	120	110	121	116	103	119	105	93	110	95	84	99	87	70	90	79	56	83	65	46	70	54	38
			Exposed	121	115	103	121	108	96	116	101	89	109	95	83	102	89	76	96	84	65	90	78	56	80	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	108	111	111	97	111	105	87	111	96	80	108	89	65	100	82	53	93	71	45
			Exposed	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	106	112	112	94	112	104	85	112	94	72	107	86	57	98	77	46	90	62	38
			Exposed	112	112	112	112	112	111	112	112	103	112	112	96	112	110	90	112	103	84	112	97	78	108	86	58	97	74	44	88	58	35	80	46	46	64	37	41	52	49	36
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	111	98	117	100	88	117	91	81	113	84	64	104	73	52
			Exposed	117	117	117	117	117	117	117	117	117	117	117	111	117	116	103	117	110	97	117	103	91	117	92	81	111	83	62	101	67	48	93	53	38	86	43	49	79	35	44
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	116	120	118	107	120	110	97	115	100	89	107	93	82	98	86	69
			Exposed	120	120	120	120	120	120	120	120	120	120	120	118	120	120	113	120	117	106	120	113	100	116	101	89	105	92	81	95	84	64	87	72	51	79	59	42	63	49	35
	C	0-7	Interior	111	111	111	111	111	111	111	111	109	111	111	102	111	111	95	111	108	90	111	102	85	111	92	72	102	84	56	93	73	46	86	60	37	79	50	49	67	43	44
			Exposed	111	111	95	111	107	89	111	100	83	111	93	74	108	88	64	101	83	55	96	77	49	87	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	112	112	112	112	112	112	112	112	107	112	112	100	112	112	93	112	107	87	112	100	82	112	90	64	101	81	49	91	63	38	83	50	49	71	41	43	57	34	38
			Exposed	112	112	93	112	105	86	112	97	80	112	91	66	107	85	56	100	80	48	94	68	41	84	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	115	117	117	108	117	114	101	117	108	95	117	96	84	115	86	69	105	75	53	96	58	42	89	47	35	82	38	46
			Exposed	117	117	107	117	113	99	117	104	92	117	97	86	117	91	80	114	85	67	108	80	57	97	59	43	88	45	34	80	36	44	65	47	39	53	41	34	45	37	31
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	116	120	120	116	120	120	103	119	105	93	110	95	84	99	87	70	90	79	56	83	65	46	70	54	38
			Exposed	120	120	115	120	119	108	120	114	101	120	106	94	115	100	88	109	94	83	102	89	76	91	80	57	82	63	44	65	50	35	51	41	47	41	34	41	34	46	37
	D	0-7	Interior	111	111	111	111	111	103	111	111	96	111	109	90	111	102	85	111	96	80	111	91	70	101	83	54	91	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	111	102	85	111	95	77	109	89	65	102	84	56	96	77	48	91	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	112	112	110	112	112	101	112	112	94	112	107	88	112	100	82	112	94	73	111	89	62	99	78	46	89	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	112	100	82	112	93	70	108	86	57	100	81	48	94	68	41	88	58	35	83	50	49	65	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	118	118	118	118	118	116	118	118	109	118	114	101	118	107	95	118	101	89	118	95	83	113	84	66	103	69	50	93	54	39	86	43	49	78	35	44	64	47	39
			Exposed	118	107	94	118	99	87	118	92	81	114	86	68	108	80	57	102	68	49	96	58	42	86	43	50	76	34	43	60	45	37	49	39	33	41	35	29	44	32	26
		27-45	Interior	121	121	121	121	121	121	121	121	116	121	120	110	121	115	103	121	110	97	118	104	92	107	93	82	96	85	66	87	73	52	79	59	42	62	49	35	50	41	47
			Exposed	121	115	103	121	108	96	116	101	89	109	95	83	102	89	76	96	84	65	90	78	56	80	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	87	96	96	80	96	89	65	96	82	53	93	71	45			
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	87	96	96	82	96	89	66	96	81	52	90	67	42	83	56	35	73	47	46	62	40	41
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	85	96	94	72	96	86	57	96	77	46	90	62	38
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
		20-27	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	98*	104*	73	52			
			Exposed	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	103*	106*	106*	97*	106*	103*	91	106*	92	81	106*	83	62	101*	67	48	93	53	38	86	43	49	79	35	44
		27-45	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	100*	89*	101*	93*	82	98*	86*	69
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	100*	101*	101*	89*	101*	92*	81	95*	84	64	87*	72	51	79	59	42	63	49	35
	C	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	95	96	96	90	96	96	85	96	92	72	96	84	56	93	73	46	86	60	37	79	50	49	67	43	44
			Exposed	96	96	95	96	96	89	96	96	83	96	93	74	96	88	64	96	83	55	96	77	49	87	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	96	87	96	96	82	96	90	64	96	81	49	91	63	38	83	50	49	71	41	43	57	34	38
			Exposed	96	96	93	96	96	86	96	96	80	96	91	66	96	85	56	96	80	48	94	68	41	84	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	95*	106*	96*	84	106*	86	69	105*	75	53	96*	58	42	89	47	35	82	38	46
			Exposed	106*	106*	106*	106*	106*	99*	106*	104*	92	106*	97*	86	106*	91	80	106*	85	67	106*	80	57	97*	59	43	88	45	34	80	36	44	65	47	39	53	41	34	45	37	31
		27-45	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	93*	101*	95*	84	99*	87*	70	90*	79	56	83	65	46	70	54	38
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	94*	101*	100*	88*	101*	94*	83	101*	89*	76	91*	80	57	82	63	44	65	50	35	51	41	47	41	34	41	34	46	37
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	90	96	96	85	96	96	80	96	91	70	96	83	54	91	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	96	96	85	96	95	77	96	89	65	96	84	56	96	77	48	91	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	96	96	96	96	96	96	96	96	94	96	96	88	96	96	82	96	94	73	96	89	62	96	78	46	89	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	96	96	82	96	93	70	96	86	57	96	81	48	94	68	41	88	58	35	83	50	49	65	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	109*	111*	111*	101*	111*	107*	95	111*	101*	89	111*	95	83	111*	84	66	103*	69	50	93	54	39	86	43	49	78	35	44	64	47	39
			Exposed	111*	107*	94	111*	99	87	111*	92	81	111*	86	68	108*	80	57	102*	68	49	96	58	42	86	43	50	76	34	43	60	45	37	49	39	33	41	35	29	44	32	26
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	103*	107*	107*	97*	107*	104*	92*	107*	93*	82	96*	85	66	87	73	52	79	59	42	62	49	35	50	41	47
			Exposed	107*	107*	103*	107*	107*	96*	107*	101*	89	107*	95*	83	102*	89	76	96*	84	65	90	78	56	80	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31

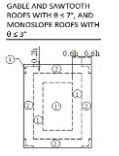
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

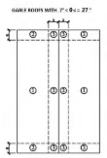
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

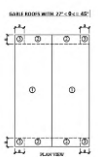
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

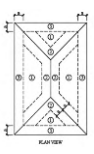












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

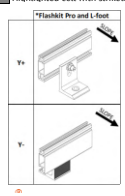
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	65	86	86	82	53	86	71	45
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	66	86	81	52	86	67	42	83	56	35	73	47	46	62	40	41
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	72	94*	94*	85*	94*	94*	72	94*	86*	57	94*	77	46	90*	62	38
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	94*	94*	84*	94*	94*	78	94*	86*	58	94*	74	44	88*	58	35	80	46	46	64	37	41	52	49	36
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	64	80*	73*	52
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	62	80*	67	48	80*	53	38	80*	43	49	79*	35	44
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	64*	74*	74*	64*	74*	72*	51	74*	59	42	64*	49	35
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	72	86	84	56	86	73	46	86	60	37	79	50	49	67	43	44
			Exposed	86	86	86	86	86	86	86	83	86	86	74	86	86	86	84	86	83	55	86	77	49	86	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	87*	94*	94*	82	94*	90*	64	94*	81	49	91*	63	38	83*	50	49	71	41	43	57	34	38
			Exposed	94*	94*	93*	94*	94*	86*	94*	94*	80	94*	91*	66	94*	85*	56	94*	80	48	94*	68	41	84*	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	69*	80*	75*	53	80*	58	42	80*	47	35	80*	38	46
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	57	80*	80*	59	43	80*	45	34	80*	36	44	65	47	39	53	41	34	45	37	31
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	70*	74*	74*	56	74*	65*	46	70*	54	38			
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	57	74*	63*	44	65*	50	35	51	41	47	41	34	41	34	46	37
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	80	86	86	70	86	83	54	86	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	86	86	85	86	86	77	86	86	65	86	84	56	86	77	48	86	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	86	96*	96*	82	96*	94*	73	96*	86	62	96*	78	46	86	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	96*	96*	82	96*	93*	70	96*	86	57	96*	81	48	94*	68	41	86	58	35	83	50	49	65	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	83*	87*	84*	66	87*	54	39	86*	43	49	78*	35	44	64	47	39						
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	81*	87*	86*	68	87*	80*	57	87*	68	49	87*	58	42	86*	43	50	76*	34	43	60	45	37	49	39	33	41	35	29	35	31	26
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	66	81*	73*	52	79*	59	42	62	49	35	50	41	47			
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76*	81*	81*	65	81*	78*	56	80*	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	80	83	82	53	83	71	45			
			Exposed	83	83	83	83	83	83	83	83	83	83	83	74	83	83	64	83	83	55	83	77	49	83	61	38	77	49	46	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	58	76*	74*	44	76*	58	35	76*	46	46	64	37	41	52	49	36
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	66*	76*	76*	56	76*	76*	48	76*	68*	41	76*	51	50	68*	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	52
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	44
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	51*	59*	59*	42	59*	50*	35
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	72	83	83	56	83	73	46	83	60	37	79	50	49	67	43	44
			Exposed	83	83	83	83	83	83	83	83	83	83	83	74	83	83	64	83	83	55	83	77	49	83	61	38	77	49	46	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	64	76*	76*	49	76*	63	38	76*	50	49	71*	41	43	57	34	38
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	66*	76*	76*	56	76*	76*	48	76*	68*	41	76*	51	50	68*	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	52
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	62*	62*	62*	44
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	51*	59*	59*	42	59*	50*	35
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	80	85	85	70	85	83	54	85	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	85	85	85	85	85	77	85	85	65	85	84	56	85	77	48	85	68	42	85	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	73*	84*	84*	62	84*	78*	46	84*	59	36	81*	46	47	64	37	41	51	49	36	42	43	32
			Exposed	84*	84*	82*	84*	84*	70	84*	84*	57	84*	81*	48	84*	68	41	84*	58	35	83*	50	49	65	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	68*	68*	50	68*	54	39	68*	43	49	68*	35	44	64*	47	39
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57	68*	68*	49	68*	58*	42	68*	43	50	68*	34	43	60*	45	37	49	39	33	41	35	29	35	31	26
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	52	64*	59*	42	62*	49	35	50	41	47
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	56*	64*	60*	43	60*	47	34	46	38	45	37	49	39	48	43	35	43	39	31
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	65	77	77	53	77	71	45			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	67	42	77	56	35	73	47	46	62	40	41
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	46	62*	62*	38
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	46	62*	62*	37	41	52	49	36
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	48*	51*	51*	38	51*	43	49	51*	35	44
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	35
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	77	73	46	77	60	37	77	50	49	67	43	44			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	74	77	77	64	77	77	55	77	77	49	77	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	50	62*	62*	49	62*	41	43
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	56*	62*	62*	48	62*	62*	41	62*	51	50	62*	40	43	53*	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45*	51*	36	44	51*	47	39	51*	41	34	45*	37	31
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	38
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	35	48*	41*	47	41*	34	41	34	46	37
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	70	80	80	54	80	69	43	80	56	35	73	47	46	61	39	41	51	51	36
			Exposed	80	80	80	80	80	80	80	65	80	80	56	80	77	48	80	68	42	80	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24	
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62*	68*	68*	46	68*	59*	36	68*	46	47	64*	37	41	51	49	36	42	43	32
			Exposed	68*	68*	68*	68*	68*	68*	68*	57	68*	68*	48	68*	68*	41	68*	58*	35	68*	50	49	65*	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21	
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	54*	39	56*	43	49	56*	35	44	56*	47	39
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	49*	56*	56*	42	56*	45	37	49*	39	33	41	31	49	36	27	44	32	24	39	28	21	
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	42	53*	49*	35	50*	41	47
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	43	53*	47*	34	47*	38	45	37	49	39	48	43	35	43	39	31

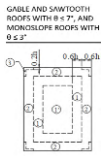
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

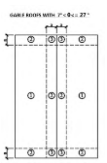
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

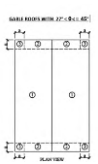
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

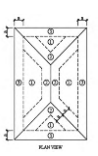












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

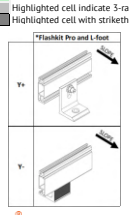
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	53	70	70	45
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	52	70	67	42	70	56	35	70	47	46	62	40	41
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	53*	38
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	44	53*	53*	35	53*	46*	46	53*	37	41	52*	49	36
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	38*	43*	43*	49	43*	35	44
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	35*
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	56	70	70	46	70	60	37	70	50	49	67	43	44
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	55	70	70	49	70	61	38	70	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	38	53*	50*	49	53*	41	43	53*	34	38
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	48*	53*	53*	41	53*	51*	50	53*	40	43	53*	50	37	42	43	32	53*	38	29	46	34	26
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	35	43*	38*	46
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36	44	43*	37	43*	37	31
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36*	41*	41*	47	41*	35*	41	34	46	37			
60	D	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	54	74	69	43	74	56	35	73	47	46	61	39	41	51	51	36
			Exposed	74	74	74	74	74	74	74	74	65	74	74	56	74	74	48	74	68	42	74	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	46	58*	58*	36	58*	46	47	58*	37	41	51*	49	36	42	43	32
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	57*	58*	58*	48	58*	58*	41	58*	58*	35	58*	50*	49	58*	38	41	49*	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	39	48*	43*	49	48*	35	44	48*	47	39
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	43*	50	48*	34	43	48*	45	37	48*	39	33	41*	35	29	35	31	26
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	42*	45*	45*	35	45*	41*	47
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	43*	45*	45*	34	45*	38	45	37	49	39	48	43	35	43	39	31
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	53	65	65	45
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	52	65	65	42
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	49	36
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	35	45*	45*	46	45*	37	41	45*	49	36	42	43	32
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	49*	38*	35*	44
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	56	65	65	46	65	60	37	65	50	49	65	43	44
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	55	65	65	49	65	61	38	65	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	34	38
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	45*	50	45*	40*	43	45*	50	37	42*	43	32	35	38	29	46	34	25
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	46
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	36*	44	38*	47	39	38*	41	34	38*	37	31
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*
70	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	54	69	69	43	69	56	35	69	47	46	61	39	41	51	51	36
			Exposed	69	69	69	69	69	69	69	69	65	69	69	56	69	69	48	69	68	42	69	60	37	69	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	36	50*	46*	47	50*	37	41	50*	49	36	42	43	32
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	48*	50*	50*	41	50*	50*	35	50*	50*	49	50*	38	41	49*	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39	41*	41*	49	41*	35	44	41*	47	39
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	33	41*	41*	29	35	31	26
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	47
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	38*	45	37*	49	39	48	43	35*	43	39	31
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	53	61	61	45
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	52	61	61	42	61	56	35	61	47	46	61	40	41
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	46	40*	37*	41	40*	49	36
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	49*	50*	50*	44*
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	49	61	43	44
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	55	61	61	49	61	61	38	61	49	48	61	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	50	40*	40*	43	40*	50	37	40*	43	32	35*	38	29	46	34	25
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	45*	50*	47*	39	50*	42	34	50*	37	30	50*	37	31
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	46*	37
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	54	65	65	43	65	56	35	65	47	46	61	39	41	51	51	36
			Exposed	65	65	65	65	65	65	65	65	65	56	65	65	48	65	65	42	65	65	37	65	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24		
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	36	44*	44*	47	44*	37	41	44*	49	36	42*	43	32
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	35	44*	44*	49	44*	38*	41	44*	48	36	39*	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	49*	37*	35*	44	37*	47*	39
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	50*	37*	34*	43	37*	45	37*	39	33	37*	36	29	35*	31	26
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	47*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	34*	35*	35*	45*	35*	49*	39	48*	43	36	43	39	31

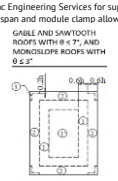
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

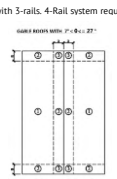
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

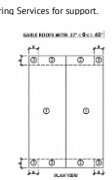
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

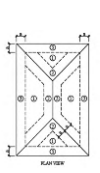












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

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

SPAN TABLES

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

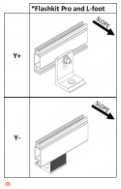
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	45
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	52	58	58	42	58	56	35	58	47	46	58	40	41
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*	36*	36*	41	36*	49*	36
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	46	58	58	37	58	50	49	58	43	44
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	49	58	58	38	58	49	48	58	40	42	52	51	37	43	45	32	37	40	29			
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*	36*	36*	43	36*	34*	38			
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	50*	36*	36*	43	36*	50*	37	36*	43	32	35*	38	29	46*	34	25			
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	42*	34	45*	37	31
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	37*
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54	61	61	43	61	56	35	61	47	46	61	39	41	51	51	36
			Exposed	61	61	61	61	61	61	61	61	61	61	61	56	61	61	48	61	61	42	61	60	37	61	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	47	40*	37*	41	40*	49	36	40*	43	32
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	49	40*	38*	41	40*	48	36	39*	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	47*	39			
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	45*	37	49*	39	33	49*	35	29	49*	31	26			
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*			
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	39	47*	43*	35			
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	45
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	42	55	55	35	55	47	46	55	40	41
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	41	49*	49*	36			
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	46	55	55	37	55	50	49	55	43	44
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	49	55	38	55	49	48	55	40	42	52	51	37	43	45	32	37	40	29			
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	49*	39
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	49*	37	49*	43*	32	49*	38	29	46*	34	25			
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	34*	40*	37*	31			
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	43	58	56	35	58	47	46	58	39	41	51	51	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	48	58	58	42	58	58	37	58	47	47	58	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	47*	36*	36*	41	36*	49*	36	36*	43	32
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*	36*	36*	41	36*	48*	36	36*	41	31	49*	36	27	44	32	24	39	28	21
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	39*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	43*	45*	45*	37	45*	45*	39	45*	31	26			
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	35	43*	39*	31

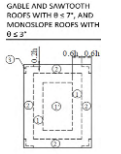
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

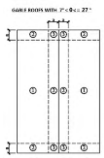
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

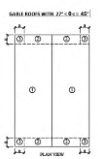
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

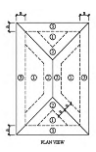












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

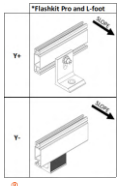
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	148	149	149	136	149	134	118	146	126	109	138	119	98	130	113	90
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	131	149	142	125	149	136	120	147	126	110	137	118	97	128	109	87	120	99	75	114	90	97	104	83	89
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	138	149	149	126	149	137	117	149	127	106	143	119	94	133	110	84
			Exposed	149	149	149	149	149	149	149	149	148	149	149	140	149	149	132	149	148	126	149	140	120	149	128	107	141	118	92	130	106	81	121	94	61	113	84	93	101	64	84
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	143	150	146	132	150	135	122	150	126	114	145	118	102
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	150	135	150	136	123	150	124	113	142	115	97	132	102	86	125	91	65	118	82	100
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	141	130	151	132	122	144	125	115
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	142	130	151	131	121	141	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	135	149	146	129	149	140	123	149	130	114	140	121	101	131	114	91	123	103	82	117	94	64	109	86	93
			Exposed	149	149	134	149	144	127	149	137	121	149	131	115	146	125	108	139	120	100	134	116	94	124	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	149	149	149	149	149	149	149	149	149	144	149	136	149	149	136	149	149	129	149	145	123	149	132	113	146	121	97	134	112	85	125	98	64	117	88	97	106	77	88
			Exposed	149	149	136	149	149	128	149	141	121	149	133	114	149	126	105	145	120	96	138	115	89	125	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	56
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	139	150	140	126	150	128	116	146	119	103	136	108	90	128	95	81	121	86	61
			Exposed	150	150	150	150	150	145	150	150	136	150	142	128	150	134	121	150	127	116	149	121	107	137	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	146	134	151	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	151	151	151	151	151	151	151	151	143	151	147	136	151	140	129	151	134	123	149	128	118	135	119	105	124	108	91	114	96	81	101	86	61	89	73	92	79	99	83
	D	0-7	Interior	149	149	149	149	149	143	149	149	136	149	147	129	149	140	123	149	134	118	149	129	113	138	119	99	129	111	88	121	99	76	114	90	97	104	83	88	95	68	81
			Exposed	149	140	123	149	133	117	147	126	110	140	121	101	134	116	94	128	110	87	123	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	149	149	149	149	149	147	149	149	138	149	149	130	149	145	123	149	145	123	149	137	117	149	130	111	144	119	95	131	108	83	121	94	61	113	84	93	100	64	83
			Exposed	149	144	123	149	135	116	149	128	107	146	121	97	138	115	89	130	106	82	124	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	148	150	150	139	150	146	132	150	139	125	150	126	115	143	116	99	133	103	87	125	91	65	117	81	99	109	61	89
			Exposed	150	150	139	150	144	130	150	135	123	150	128	116	149	121	107	142	115	98	136	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	56
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	139	151	145	133	151	133	122	142	123	113	130	115	99	121	105	89	113	95	79	100	86	61
			Exposed	151	151	146	151	149	138	151	142	130	151	135	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	136	139	139	139	139	139	126	139	126	109	138	119	98	130	113	90
			Exposed	139	139	139	139	139	139	139	139	139	139	139	137	139	139	131	139	139	125	139	136	120	139	126	110	137	118	97	128	109	87	120	99	75	114	90	97	104	83	89
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	138	140	140	126	140	137	117	140	127	106	140	119	94	133	110	84
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	132	140	140	126	140	140	120	140	128	107	140	128	94	130	106	81	121	94	61	113	84	93	101	64	84
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	132	146	135	122	146	126	114	145	118	102
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	142	146	146	135	146	136	123	146	124	113	142	115	97	132	102	86	125	91	65	118	82	100
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	139	150	141	130	150	132	122	144	125	115
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	142	130	150	131	121	141	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	135	139	139	129	139	139	123	139	130	114	139	121	101	131	114	91	123	103	82	117	94	64	109	86	93
			Exposed	139	139	134	139	139	127	139	137	121	139	131	115	139	125	108	139	120	100	134	116	94	124	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	140	129	140	140	123	140	132	113	140	121	97	134	112	85	125	98	64	117	88	97	106	77	88
			Exposed	140	140	136	140	140	128	140	140	121	140	133	114	140	126	105	140	120	96	138	115	89	125	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	56
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	140	126	146	119	103	136	108	90	128	95	81	121	86	61
			Exposed	146	146	146	146	146	145	146	146	136	146	142	128	146	134	121	146	127	116	146	121	107	137	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	134	150	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	150	150	150	150	150	150	150	150	143	150	147	136	150	140	129	150	134	123	149	128	118	135	119	105	124	108	91	114	96	81	101	86	61	89	73	92	79	99	83
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	129	139	139	123	139	134	118	139	129	113	138	119	99	129	111	88	121	99	76	114	90	97	104	83	88	95	68	81
			Exposed	139	139	123	139	133	117	139	126	110	139	121	101	134	116	94	128	110	87	123	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	140	140	140	140	140	140	140	140	138	140	140	130	140	140	130	140	140	123	140	137	117	140	130	111	140	119	95	131	108	83	121	94	61	113	84	93	100	64	83
			Exposed	140	140	140	140	140	135	140	140	128	140	140	121	140	140	128	140	140	123	140	140	118	135	119	105	124	108	91	114	96	81	101	86	61	89	73	92	79	99	83
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	139	147	146	132	147	139	125	147	126	115	143	116	99	133	103	87	125	91	65	117	81	99	109	61	89
			Exposed	147	147	139	147	144	130	147	135	123	147	128	116	147	121	107	142	115	98	136	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	56
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	139	151	145	133	151	133	122	142	123	113	130	115	99	121	105	89	113	95	79	100	86	61
			Exposed	151	151	146	151	149	138	151	142	130	151	135	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	118	126	126	109	126	119	98	126	113	90
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	120	126	126	110	126	118	97	126	109	87	120	99	75	114	90	97	104	83	89
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	117	127	127	106	127	119	94	127	110	84
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	120	127	127	107	127	118	92	127	106	81	121	94	61	113	84	93	101	64	84
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	132	135	135	122	135	126	114	135	118	102
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	123	135	124	113	135	115	97	132	102	86	125	91	65	118	82	100
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	139	140	140	130	140	132	122	140	125	115
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	130	140	131	121	140	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	114	126	126	114	126	121	101	126	114	91	123	103	82	117	94	64	109	86	93
			Exposed	126	126	126	126	126	126	126	126	121	126	126	115	126	125	108	126	120	100	126	116	94	124	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	113	127	127	97	127	112	85	125	98	64	117	88	97	106	77	88
			Exposed	127	127	127	127	127	127	127	127	121	127	127	114	127	126	105	127	120	96	127	115	89	125	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	56
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	126	135	128	116	135	119	103	135	126	108	128	95	81	121	86	61
			Exposed	135	135	135	135	135	135	135	135	135	135	135	128	135	134	121	135	127	116	135	121	107	135	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	134	140	135	124	140	126	115	134	118	104	125	110	93	117	99	84
			Exposed	140	140	140	140	140	140	140	140	140	140	140	136	140	140	129	140	134	123	140	128	118	135	119	105	124	108	91	114	96	81	101	86	61	89	73	92	79	99	83
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	118	126	126	113	126	119	99	126	111	88	121	99	76	114	90	97	104	83	88	95	68	81
			Exposed	126	126	123	126	126	117	126	121	110	126	121	101	126	116	94	126	110	87	123	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	117	127	127	111	127	119	95	127	108	83	121	94	61	113	84	93	100	64	83	89	97	63
			Exposed	127	127	123	127	127	116	127	127	107	127	121	97	127	115	89	127	106	82	124	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	132	137	137	125	137	126	115	137	116	99	133	103	87	125	91	65	117	81	99	109	61	89
			Exposed	137	137	137	137	137	130	137	135	123	137	128	116	137	121	107	137	115	98	136	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	56
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	139	142	142	133	142	133	122	141	123	113	130	115	99	121	105	89	113	95	79	100	86	61
			Exposed	142	142	142	142	142	138	142	142	130	142	135	124	142	128	118	141	123	112	134	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60

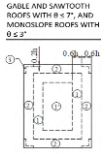
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

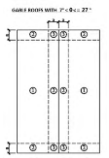
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

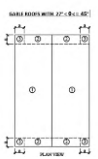
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

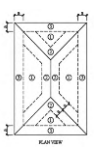












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

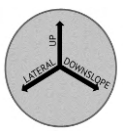
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

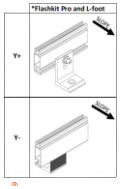
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	98	117	113	90
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	87	117	99	75	114	90	97	104	83	89
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	106	118	118	94	118	110	84
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	81	118	94	61	113	84	93	101	64	84
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	126	114	127	118	102
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	124	113	127	115	97	127	102	86	125	91	65	118	82	100
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	111	122*	115	99	122*	105	89	114	95	80
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	114	117	117	101	117	114	91	117	103	82	117	94	64	109	86	93
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	115	117	117	108	117	117	100	117	116	94	117	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	113	118	118	97	118	112	85	118	98	64	117	88	97	106	77	88
			Exposed	118	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	96	118	115	89	118	99	65	115	87	102	65	85	90	97	64	80	87	56	61	73	50	84		
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	116	127	119	103	127	108	90	127	95	81	121	86	61			
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	121	127	127	116	127	121	107	127	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60		
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115	122*	118	104	122*	110	93	117	99	84			
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	118	122*	119	105	122*	108	91	114	96	81	101	86	61	89	73	92	79	99	83	
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	113	117	117	99	117	111	88	117	99	76	114	90	97	104	83	88	95	68	81
			Exposed	117	117	117	117	117	117	117	117	110	117	117	101	117	116	94	117	110	87	117	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47	
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	95	118	108	83	118	94	61	113	84	93	100	64	83	89	97	63
			Exposed	118	118	118	118	118	116	118	118	107	118	118	97	118	115	89	118	106	82	118	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42	
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	125	129	126	115	129	116	99	129	103	87	125	91	65	117	81	99	109	61	89		
			Exposed	129	129	129	129	129	129	129	129	123	129	128	116	129	121	107	129	115	98	129	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	50	
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	123	113	127	115	99	121	105	89	113	95	79	100	86	61
			Exposed	127	127	127	127	127	127	127	127	127	127	124	127	127	118	127	123	112	127	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60		
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	109	115	115	98	115	113	90
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	97	115	109	87	115	110	97	114	90	97	104	83	89
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	106	115	115	94	115	110	84
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	92	115	106	81	115	94	61	113	84	93	101	64	84
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	102*		
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	97	113*	102*	86	113*	91	65	113*	82	100
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	105*	89	109*	96*	80			
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	101	115	114	91	115	103	82	115	94	64	109	86	93			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	108	115	115	100	115	115	94	115	104	83	115	93	63	105	84	90	96	69	81	87	93	63	80	86	56	
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	113	115	115	97	115	112	85	115	98	64	115	88	97	106	77	88			
			Exposed	115	115	115	115	115	115	115	115	115	114	115	115	105	115	115	96	115	115	89	115	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	50			
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	103*	113*	108*	90	113*	95	81	113*	86	61			
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	107*	113*	109*	91	113*	94	75	113*	82	101	110*	61	89	99	94	80	90	85	60	
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	104*	109*	109*	93	109*	100*	84			
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	105*	109*	108*	91	109*	96*	81	101*	86	61	89	73	92	79	99	83	
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	113	117	117	99	117	111	88	117	99	76	114	90	97	104	83	88	95	68	81
			Exposed	117	117	117	117	117	117	117	117	110	117	117	101	117	116	94	117	110	87	117	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47	
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	111	117	117	95	117	108	83	117	94	61	113	84	93	100	64	83	89	97	63
			Exposed	117	117	117	117	117	116	117	117	107	117	117	97	117	115	89	117	106	82	117	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42	
		20-27	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107	118*	115*	98	118*	107	90	118*	107	92	65	116*	78	98	105	101	86	95	90	64	86	80	57	74	61	50
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107	118*	115*	98	118*	107	90	118*	107	92	65	116*	78	98	105	101	86	95	90	64	86	80	57	74	61	50
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104*	114*	114*	104*	114*	114*	99	114*	105*	89	113*	95	79	100	86	61			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	106*	89	111*	93	73	96	83	98	85	64	88	63	94	76	99	85	60			
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	98	107	107	90			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	99	107	107	97	107	83	89			
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	106*	112*	112*	94	112*	110*	84			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	106*	81	112*	94	61	112*	84	93	101	64	84			
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*			
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	97*	100*	100*	86*	100*	91*	65	100*	82	100			
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	89*	94*	94*	80*			
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	101	107	107	91	107	103	82	107	94	64	107	86	93		
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	100	107	107	94	107	104	83	107	93	63	105	84	90	96	69	81	87	93	63	80	86	56	
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	98	112*	112*	88			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	105*	112*	112*	96	112*	112*	89	112*	99	65	112*	87	96	102*	65	85	90	97	64	80	87	56	61	73	50		
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	95*	81	100*	86*	61		
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	91*	100*	94*	75	100*	82	101	100*	61	89	99*	94	80	90*	85	60	
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	84*			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	91*	94*	94*	81*	94*	86*	61	89*	73	92	80*	99	83			
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	99	111	111	88	111	99	76	111	90	97	104	83	88	95	68	81
			Exposed	111	111	111	111	111	111	111	110	111	111	101	111	111	94	111	110	87	111	103	82	111	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47	
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	111	115*	115*	95	115*	108	83	115*	94	61	113*	84	93	100	64	83	89	97	63
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	107	115*	115*	97	115*	115*	89	115*	106	82	115*	98	64	114*	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42	
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	99*	107*	103*	87	107*	91	65	107*	81	99	107*	61	89	
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	92*	65	107*	78	98	105*	101	86	95*	90	64	86	80	57	74	61	50
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	99*	103*	103*	89*	103*	95*	79	100*	86	61
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	90*	103*	93*	73	96*	83	98	85	64	88	63	94	76	99	85	60	

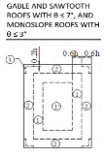
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

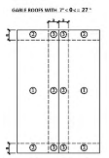
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

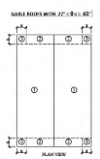
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

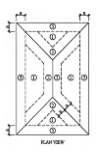












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

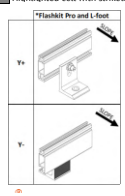
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	90
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	87	98	98	75	98	90	97	98	83	89
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94*	102*	102*	84
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	92*	102*	102*	81	102*	94*	61	102*	84	93	101*	64	84
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	65	85*	82*	100
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	91	98	98	82	98	94	64	98	86	93
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	94	98	98	84	98	98	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	97*	102*	102*	85	102*	98*	64	102*	88*	97	102*	77	88
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	99*	65	102*	87*	96	102*	65	85	90*	97	64	80	87	56	61	73	56
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	81*	85*	85*	61
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	82*	101	85*	61	89	85*	94	80	85*	85	60
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	90	97	103	83	88	95	68	81
			Exposed	103	103	103	103	103	103	103	103	103	103	103	101	103	103	94	103	103	87	103	103	82	103	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	95*	109*	108*	83	109*	94	61	108*	84	93	100*	64	83	89	97	63
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	97*	109*	109*	89	109*	106*	82	109*	98*	64	109*	85	94	98*	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	87*	93*	91*	65	93*	81*	99	93*	61	89	93*	61	89
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	90*	93*	92*	65	93*	78	98	93*	101	86	93*	90	64	86*	80	57	74	61	56
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	79*	88*	86*	61
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	74*	88*	83*	98	85*	64	88	63	94	76	99	85	60
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	84*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	93	89*	64	84
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	65*	73*	73*	100*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	82	91	91	64	91	86	93
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	83	91	91	63	91	84	90	91	69	81	87	93	63	80	86	56
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	85*	89*	89*	64	89*	88*	97	89*	77*	88
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	65	89*	87*	96	89*	65	85	89*	97	64	80*	87	56	61	73	59
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	61
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	101*	73*	61	89	73*	94*	80	73*	85	60
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	92*	70*	99*	83
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	76	96	90	97	96	83	88	95	68	81
			Exposed	96	96	96	96	96	96	96	96	96	96	96	94	96	96	87	96	96	82	96	91	98	96	82	87	92	64	74	84	90	66	70	82	59	94	67	47	94	67	47
		7-20	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	95*	98*	98*	83*	98*	94*	61	98*	84*	93	98*	64	83	89*	97	63
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	97*	98*	98*	89	98*	98*	82	98*	98*	64	98*	85*	94	98*	62	82	86*	93	61	65	83	59	98	63	47	88	56	49
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	65	81*	81*	99	81*	61	89	81*	61	89
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	65	81*	78*	98	81*	101	86	81*	90	64	81*	80	57	74*	61	56
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	61
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	99*	77*	64	88	63	94	76	99*	85	60	86	86	86	86	86	86
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	75	86	86	97	86	83	89
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	61	78*	78*	93	78*	64	84
		20-27	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
		27-45	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	64	86	86	93
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	63	86	84	90	86	69	81	86	93	63	80	86	56
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	77*	88
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	65	78*	78*	96	78*	65	85	78*	97	64	78*	87	56	61	73	56
		20-27	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	89*	97*	94*	80	97*	85*	60
		27-45	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	84*
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	76	90	90	97	90	83	88	90	68	81
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	98	90	90	82	87	90	64	74	84	90	70	82	59	94	67	47
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	83*	86*	86*	61	86*	84*	93	86*	64	83	86*	97	63
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	94	86*	86*	62	82	86*	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	65*	72*	72*	99*	72*	61*	89
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	65*	72*	72*	98*	72*	101*	86	72*	90	64	72*	80	57	72*	61	56
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	61*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	98*	68*	64*	88*	63*	94*	76	99*	86*	60

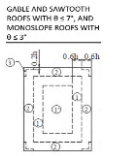
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

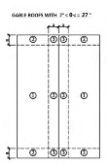
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

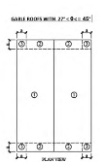
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

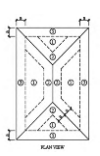












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

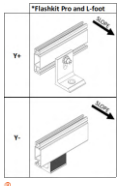
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

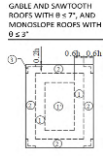
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

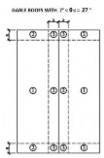
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

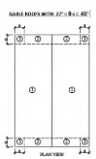
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

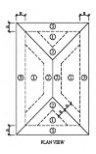












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

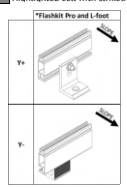
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	124	104	127	115	94	125	104	86	117	95	77	109	88	64	100	82	54			
			Exposed	127	127	127	127	127	121	127	127	115	127	125	106	127	119	99	127	115	93	127	108	88	118	96	79	108	87	62	97	80	50	90	66	42	83	56	37	74	47	49
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	116	127	124	100	127	114	90	127	100	82	117	91	68	106	84	55	96	74	45			
			Exposed	127	127	127	127	127	121	127	127	114	127	126	103	127	119	95	127	114	90	127	104	85	118	92	69	104	83	53	93	69	42	85	55	37	76	45	49	62	39	44
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	119	126	121	105	126	110	94	126	97	86	121	89	77	115	82	62			
			Exposed	126	126	126	126	126	126	126	126	126	126	126	121	126	126	114	126	120	104	126	114	97	126	98	86	120	88	75	111	80	58	99	63	46	92	51	39	85	42	35
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117	121*	119*	105	121*	110	95	117	99	87	106	92	81			
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	116	121*	121*	109	121*	111	95	116	98	86	101	90	77	92	82	61	85	71	50	75	59	42
	C	0-7	Interior	127	127	127	127	127	124	127	127	118	127	127	112	127	123	103	127	117	96	127	112	91	121	99	82	113	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	127	122	102	127	116	95	127	109	89	122	101	83	117	95	76	111	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	127	127	127	127	127	124	127	127	117	127	127	109	127	123	99	127	117	93	127	110	88	122	95	76	111	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	127	123	99	127	115	91	127	105	85	123	97	79	117	91	67	109	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	124	126	126	118	126	124	110	126	118	100	126	102	90	124	91	81	115	83	64	104	70	50	95	56	41	88	46	37
			Exposed	126	126	117	126	122	108	126	115	97	126	105	91	126	96	85	123	91	80	118	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	114	121*	115	99	120*	102	89	108	93	82	96	85	67	88	77	55	81	64	45
			Exposed	121*	121*	121*	121*	121*	118	121*	121*	110	121*	116	100	121*	109	94	119*	101	89	113	95	84	96	86	68	87	75	53	77	60	42	60	49	37	49	41	49	41	37	44
	D	0-7	Interior	127	127	120	127	127	114	127	124	104	127	118	97	127	112	91	125	105	86	120	98	81	110	89	65	98	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	127	112	91	124	103	85	118	96	78	112	90	67	104	85	58	97	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	127	127	120	127	127	112	127	124	100	127	117	93	127	110	88	127	110	88	122	94	74	107	85	56	94	71	43	86	56	37	76	45	49	61	39	43	50	52	38
			Exposed	127	109	87	125	99	81	118	92	69	110	86	58	100	81	49	94	69	42	88	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	126	126	126	126	126	126	126	126	119	126	124	111	126	118	100	126	110	94	126	101	89	122	90	78	113	81	59	100	64	46	92	51	39	85	42	35	77	37	46
			Exposed	126	117	100	126	108	93	126	98	86	123	91	81	118	85	68	112	80	58	104	69	50	92	52	40	84	41	51	72	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	120*	121*	121*	114	121*	119*	105	121*	114	98	118	100	88	103	91	79	93	83	62	85	71	50	74	58	42	60	49	37			
			Exposed	121*	121*	114	121*	118	103	121*	111	95	119*	102	89	113	95	84	102	90	77	95	85	67	85	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	117	119	119	104	119	104	86	117	95	77	109	88	64	100	82	54			
			Exposed	119	119	119	119	119	119	119	119	119	119	119	106	119	119	96	119	119	93	119	108	88	118	96	79	108	87	62	97	80	50	97	66	42	83	56	37	74	47	49
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	116	119	119	100	119	114	90	119	100	82	117	91	68	106	84	55	96	74	45
			Exposed	119	119	119	119	119	119	119	119	114	119	119	103	119	119	95	119	114	90	119	104	85	118	92	69	104	83	53	93	69	42	85	55	37	76	45	49	62	39	44
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	119	124	121	105	124	110	94	124	97	86	121	89	77	115	82	62
			Exposed	124	124	124	124	124	124	124	124	124	124	124	121	124	124	114	124	120	104	124	114	97	124	98	86	120	88	75	111	80	58	99	63	46	92	51	39	85	42	35
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117	121*	119*	105	121*	110	95	117	99	87	106	92	81			
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	116	121*	121*	109	121*	111	95	116	98	86	101	90	77	92	82	61	85	71	50	75	59	42
	C	0-7	Interior	119	119	119	119	119	119	119	119	118	119	119	112	119	119	103	119	117	96	119	112	91	119	99	82	113	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	119	119	102	119	116	95	119	109	89	119	101	83	117	95	76	111	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	119	119	119	119	119	119	119	119	117	119	119	109	119	119	99	119	117	93	119	110	88	119	95	76	111	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	119	119	99	119	115	91	119	105	85	119	97	79	117	91	67	109	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	119	124	121	105	124	110	94	124	97	86	121	89	77	115	82	62
			Exposed	124	124	117	124	122	108	124	115	97	124	105	91	124	96	85	123	91	80	118	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	114	121*	115	99	120*	102	89	108	93	82	96	85	67	88	77	55	81	64	45
			Exposed	121*	121*	121*	121*	121*	118	121*	121*	110	121*	116	100	121*	109	94	119*	101	89	113	95	84	96	86	68	87	75	53	77	60	42	60	49	37	49	41	49	41	37	44
	D	0-7	Interior	119	119	119	119	119	119	119	119	118	119	119	112	119	119	103	119	117	96	119	112	91	119	99	82	113	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	119	119	102	119	116	95	119	109	89	119	101	83	117	95	76	111	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	119	119	119	119	119	119	119	119	117	119	119	109	119	119	99	119	117	93	119	110	88	119	95	76	111	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	119	119	99	119	115	91	119	105	85	119	97	79	117	91	67	109	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	119	124	121	105	124	110	94	124	97	86	121	89	77	115	82	62
			Exposed	124	124	117	124	122	108	124	115	97	124	105	91	124	96	85	123	91	80	118	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	120*	121*	121*	114	121*	119*	105	121*	114	98	118	100	88	103	91	79	93	83	62	85	71	50	74	58	42	60	49	37			
			Exposed	121*	121*	114	121*	118	103	121*	111	95	119*	102	89	113	95	84	102	90	77	95	85	67	85	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	103	105	105	96	105	105	91	105	99	82	105	90	68	101	83	55	93	72	45	86	60	39	80	51	35
			Exposed	105	105	102	105	105	95	105	105	89	105	101	83	105	95	76	105	90	66	104	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	95	76	105	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	105	105	99	105	105	91	105	105	85	105	97	79	105	91	67	105	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	100	117*	102	90	117*	91	81	115*	83	64	104	70	50	95	56	41
			Exposed	117*	117*	117*	117*	117*	108	117*	115*	97	117*	105	91	117*	96	85	117*	91	80	117*	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	99	112*	102*	89	108*	93	82	96	85	67	88	77	55	81	64	45
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	110*	112*	112*	100	112*	112*	94	112*	102*	89	112*	95	84	96	86	68	87	75	53	77	60	42	60	49	37	49	41	49	41	37	44
	C	0-7	Interior	105	105	105	105	105	105	105	105	104	105	105	97	105	105	91	105	105	86	105	98	81	105	89	65	98	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	105	105	91	105	103	85	105	96	78	105	90	67	104	85	58	97	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	119	119	119	119	119	119	119	119	117	119	119	93	119	119	88	119	117	93	119	110	88	119	95	76	111	86	58	97	76	46	89	60	39	82	49	52	68	41	46
			Exposed	119	119	99	119	115	91	119	105	85	119	97	79	117	91	67	109	85	57	100	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	119	124	121	105	124	110	94	124	97	86	121	89	77	115	82	62
			Exposed	124	124	117	124	122	108	124	115	97	124	105	91	124	96	85	123	91	80	118	85	69	105	71	51	94	54	41	86	43	35	78	37	47	64	50	41	53	44	37
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	114	121*	115	99	120*	102	89	108	93	82	96	85	67	88	77	55	81	64	45
			Exposed	121*	121*	121*	121*	121*	118	121*	121*	110	121*	116	100	121*	109	94	119*	101	89	113	95	84	96	86	68	87	75	53	77	60	42	60	49	37	49	41	49	41	37	44
	D	0-7	Interior	105	105	105	105	105	105	105	105	104	105	105	97	105	105	91	105	105	86	105	98	81	105	89	65	98	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	105	105	91	105	103	85	105	96	78	105	90	67	104	85	58	97	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	105	105	105	105	105	105	105	105	100	105	105	93	105	105	88	105	100	82	105	94	74	105	85	56	94	71	43	86	56	37	76	45	49	61	39	43	50	52	38
			Exposed	105	105	87	105	99	81	105	92	69	105	86	58	100	81	49	94	69	42	88	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	111	117	117	100	117	110	94	117	101	89	117	90	78	113	81	59	100	64	46	92	51	39	85	42	35	77	37	46
			Exposed	117	117	100	117	108	93	117	98	86	117	91	81	117	85	68	112	80	58	104	69	50	92	52	40	84	41	51	72	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	105	116*	114*	98	116*	100	88	103	91	79	93	83	62	85	71	50	74	58	42	60	49	37
			Exposed	116*	116*	114*	116*	116*	103	116*	111*	95	116*	102	89	113*	95	84	102	90	77	95	85	67	85	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37

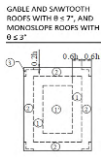
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

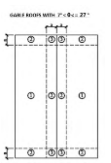
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

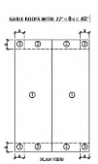
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

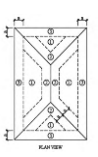












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

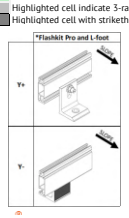
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	77	94	94	88	64	94	82	54
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	79	94	87	62	94	80	50	90	66	42	83	56	37	74	47	49
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	100*	102*	102*	102*	82	102*	91	68	102*	84	55	94	74	45
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	90	102*	102*	85	102*	92	69	102*	83	53	93	69	42	85	55	37	76	45	49	62	39	44
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	94*	95*	95*	86*	95*	89*	77	95*	82*	62
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	86*	95*	88*	75	95*	80	58	95*	63	46	92*	51	39	85*	42	35
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	87*	89*	89*	81*	89*	89*	81*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	89*	89*	77*	89*	82*	61	85*	71	50	76*	59	42
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	82	94	90	68	94	83	55	93	72	45	86	60	39	80	51	35
			Exposed	94	94	94	94	94	94	94	94	89	94	94	83	94	94	76	94	90	66	94	85	58	93	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	99*	102*	102*	93	102*	102*	88	102*	94	76	102*	86	58	94	76	46	89	60	39	82	49	52	68	41	46
			Exposed	102*	102*	99*	102*	102*	102*	85	102*	94	79	102*	91	67	102*	85	57	100*	81	49	89	61	39	81	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	91*	81*	95*	83*	64	95*	70	50	95*	56	41	88*	46	37
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	91*	95*	95*	85*	95*	91*	80	95*	85*	69	95*	71	51	94*	54	41	86*	43	35	78	51	37	94*	54	41	53	44	37
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	82*	89*	85*	67	88*	77*	55	81*	64	45			
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	68	87*	76*	53	77*	60	42	60	49	37	49	41	49	41	37	44		
	D	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	91	94	94	86	94	94	81	94	89	65	94	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	94	94	91	94	94	85	94	94	78	94	90	67	94	85	58	94	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	82	94	94	74	94	85	56	94	71	43	86	56	37	76	45	49	61	39	43	50	52	38		
			Exposed	94	94	87	94	94	81	94	92	69	94	86	58	94	81	49	94	69	42	88	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	100*	104*	104*	94*	104*	101*	89*	104*	90*	78	104*	81	59	100*	64	46	92*	51	39	85	42	35	77	37	46
			Exposed	104*	104*	100*	104*	104*	93*	104*	98*	86	104*	91*	81	104*	85	68	104*	80	58	104*	69	50	92*	52	40	84	41	51	72	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	88*	96*	91*	79	93*	83*	62	85*	71	50	74	58	42	60	49	37
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	95*	96*	96*	89*	96*	95*	84*	96*	90*	77	95*	85*	67	85*	72	51	72	57	41	56	46	35	44	39	47	38	52	41	51	46	37
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	64	90	82	54
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	82*	91*	91*	68	91*	84*	55	91*	74	45
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	85*	91*	91*	69	91*	83*	53	91*	69	42	85*	55	37	76	45	49	62	39	44
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	58	75*	75*	63*	46	75*	51	39	75*	42	35
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	50	70*	70*	42
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	82	90	90	68	90	83	55	90	72	45	86	60	39	80	51	35
			Exposed	90	90	90	90	90	90	90	90	89	90	90	83	90	90	76	90	90	66	90	85	58	90	73	45	85	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	88*	91*	91*	76	91*	76	46	89*	60	39	82*	49	52	68	41	46			
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	85*	91*	91*	79*	91*	91*	67	91*	85*	57	91*	81*	49	89*	61	39	81*	47	51	63	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64*	75*	70*	50	75*	56	41	75*	46	37			
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	71*	51	75*	54	41	75*	43	35	75*	37	47	64*	50	41	53	44	37
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	68*	70*	70*	53	70*	60*	42	61*	49	37	49	41	49	41	37	44
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	68*	70*	70*	53	70*	60*	42	61*	49	37	49	41	49	41	37	44
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	93	93	91	93	93	86	93	93	81	93	89	65	93	81	52	90	67	42	83	56	37	73	47	49	62	41	43
			Exposed	93	93	91	93	93	85	93	93	78	93	90	67	93	85	58	93	80	51	92	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	93*	97*	97*	88*	97*	97*	82	97*	94*	74	97*	85*	56	94*	71	43	86*	56	37	76	45	49	61	39	43	50	52	38
			Exposed	97*	97*	87*	97*	97*	81	97*	92	69	97*	86*	58	97*	81	49	94*	69	42	88*	60	39	78	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	78*	82*	81*	59	82*	64	46	82*	51	39	82*	42	35	77*	37	46
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*	82*	82*	68	82*	80*	58	82*	82*	69*	50	82*	52	40	82*	41	51	72*	36	44	59	47	39	49	41	34	41	37	31
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	62	76*	71*	50	74*	58	42	60	49	37
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	67*	76*	72*	51	72*	57	41	56	46	35	44	39	47	38	52	41	51	46	37
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	77	84	84	64	84	82	54			
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	79	84	84	62	84	80	50	84	66	42	83	56	37	74	47	49
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	68*	74*	74*	55	74*	74*	45			
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*	74*	74*	53	74*	69*	42	74*	55	37	74*	45	49	62	39	44
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*			
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	58*	61*	61*	46	61*	51	39	61*	42	35
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	50*	58*	58*	42
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	68	84	83	55	84	72	45	84	60	39	80	51	35
			Exposed	84	84	84	84	84	84	84	84	84	84	84	83	84	84	76	84	84	66	84	84	58	84	73	45	84	59	38	75	48	50	62	41	44	52	36	39	44	48	34
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	60	74*	49	52	68*	41	46
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	67*	74*	74*	57	74*	74*	49	74*	61	39	74*	47	51	63*	39	44	50	52	39	42	46	34	37	41	30
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	50	61*	56*	41	61*	46	37
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	54*	61*	43	35	61*	37	47	61*	50	41	53*	44	37
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	55*	58*	58*	45			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	53*	58*	58*	42	58*	49*	37	49*	41	49	41	37	44
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	81	87	87	65	87	81	52	87	67	42	83	56	37	73	47	49	62	41	43
			Exposed	87	87	87	87	87	85	87	87	78	87	87	67	87	85	58	87	80	51	87	71	45	83	57	37	71	46	48	58	39	42	48	51	37	41	45	32	36	40	29
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	74*	82*	82*	56	82*	71*	43	82*	56	37	76*	45	49	61	39	43
			Exposed	82*	82*	82*	82*	82*	81*	82*	82*	69*	82*	82*	58	82*	81*	49	82*	69*	42	82*	60	39	78*	45	50	59	38	43	47	50	37	39	43	32	35	38	29	46	34	25
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	59*	67*	64*	46	67*	51	39	67*	42	35	67*	37	46
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	50	67*	41	51	67*	47	39	49	41	34	41	37	31
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	50	63*	58*	42	60*	49	37
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	51	63*	57*	41	56*	46	35	44	39	47	38	52	41	51	46	37

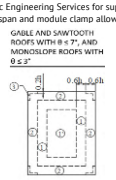
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

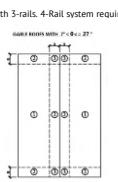
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

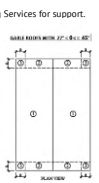
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

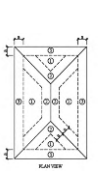












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

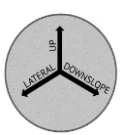
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

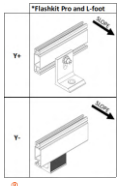
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

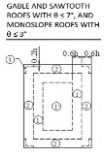
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

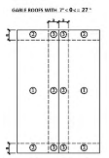
10 Highlighted cell indicates 3-rail system span. Contact Unirac Engineering Services for support.

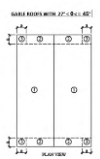
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

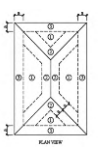












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

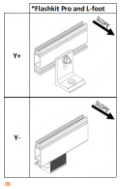
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	54
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	50	63	63	42	63	56	37	63	47	49
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	37*	43*	43*	49	43*	39*	44
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	45	63	60	39	63	51	35
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	63	63	63	63	63	59	38	63	48	50	62	41	44	52	36	39	44	48	84
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	52	43*	41*	46
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	43*	43*	43*	44	43*	52	39	42*	46	84	37*	41	80
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	47*	36*	50*	41	36*	44	37
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	49	34*	34*	44*
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	52	67	67	42	67	56	37	67	47	49	62	41	43
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	67	51	67	67	45	67	57	37	67	46	48	58	39	42	48	51	37	41	45	32	36	40	29			
		7-20	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	47*	37	47*	45*	49	47*	39	43	47*	52	38
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	39	47*	45*	50	47*	38	43	47*	50	37	39	43	32	35	38	29	46	34	25			
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	46
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	51*	39*	36*	44	39*	47	39	39*	41	34	39*	37	31
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*	37*	37*	47	37*	52*	41	52*	46	37
100	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	42	60	56	37	60	47	43
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	39*	39*	49	39*	39*	44
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	45	60	60	39	60	51	35
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	45	60	59	38	60	48	50	60	41	44	52	36	39	44	48	84	
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	52*	39*	39*	46
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	51*	39*	39*	44	39*	52*	39	39*	46	34	37*	41	80	
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	41*	48*	44*	37
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	42	63	56	37	63	47	49	62	41	43
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	51	63	63	45	63	57	37	63	46	48	58	39	42	48	51	37	41	45	32	36	40	29			
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	43*	49	43*	39*	43	43*	52	38
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	39	43*	43*	50	43*	38*	43	43*	50	37	39*	43	32	35	38	29	46	34	25			
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	51*	36*	36*	44	36*	47*	39	36*	41	34	36*	37	31			
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	47*	34*	52*	41	51*	46*	37

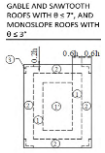
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

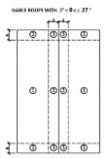
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

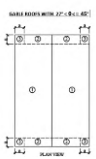
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

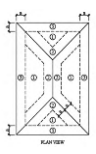












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

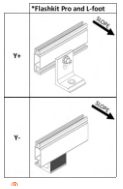
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	137	150	144	127	150	135	119	148	127	111	139	120	100	132	114	91
			Exposed	150	150	150	150	150	150	150	150	146	150	150	139	150	150	132	150	144	127	150	138	121	149	128	112	138	119	99	129	111	88	121	100	80	115	92	62	106	84	90
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	151	128	151	138	118	151	128	108	145	120	96	135	113	86
			Exposed	151	151	151	151	151	151	151	151	150	151	151	141	151	151	134	151	149	127	151	142	121	151	129	109	143	119	94	132	108	83	122	96	62	114	85	95	103	66	85
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	145	151	151	145	151	148	133	151	136	123	151	127	115	146	119	104
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	136	151	137	124	151	126	114	143	116	100	134	104	88	126	93	69	119	83	59
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	141	152	142	131	152	134	123	146	126	116
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	144	152	143	132	152	143	122	142	124	114	132	116	101	123	107	90	115	97	82
	C	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	143	150	150	136	150	147	130	150	141	125	150	131	115	142	122	103	132	115	92	124	105	83	118	95	66	111	88	58
			Exposed	150	150	136	150	146	128	150	139	122	150	132	116	147	126	110	141	121	102	135	117	95	125	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	151	131	151	146	125	151	133	114	148	122	99	136	114	87	126	100	67	118	90	58	108	81	89
			Exposed	151	151	138	151	151	129	151	143	122	151	135	116	151	128	107	147	122	98	139	116	90	127	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	142	128	151	130	118	147	120	105	138	110	92	129	97	82	122	87	62
			Exposed	151	151	151	151	151	147	151	151	137	151	144	130	151	136	123	151	129	117	151	123	110	138	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	147	136	152	136	125	147	127	117	136	119	106	126	112	95	118	101	86
			Exposed	152	152	152	152	152	152	152	152	145	152	149	137	152	142	130	152	135	124	151	130	119	137	120	107	125	110	93	116	98	83	103	88	62	91	79	94	82	62	85
	D	0-7	Interior	150	150	150	150	150	145	150	150	137	150	148	130	150	141	125	150	135	119	150	130	114	140	121	101	130	112	90	122	101	80	115	92	62	106	84	90	97	72	82
			Exposed	150	141	124	150	134	118	148	127	112	141	122	103	135	117	95	129	111	89	124	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	151	151	151	151	151	148	151	151	139	151	151	131	151	146	125	151	139	119	151	132	113	146	121	97	133	110	84	123	96	63	114	85	95	102	65	85	91	58	65
			Exposed	151	146	124	151	137	117	151	129	109	148	122	99	139	116	90	132	109	83	126	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	148	133	151	141	127	151	128	116	144	118	101	134	105	88	126	93	69	118	83	58	111	62	91
			Exposed	151	151	141	151	151	146	132	151	137	124	151	129	117	151	123	110	143	117	100	137	110	92	126	93	73	118	81	57	107	60	87	96	92	66	87	82	58	79	62	54
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	141	152	146	135	152	134	124	144	125	114	132	117	101	123	107	90	115	96	81	102	88	62
			Exposed	152	152	148	152	151	139	152	143	132	152	136	125	151	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	60	86	66	90	65	58	81	57	87	62
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	141	141	127	141	135	119	141	127	111	139	120	100	132	114	91
			Exposed	141	141	141	141	141	141	141	141	141	141	141	139	141	141	141	141	141	132	141	141	127	141	138	121	141	128	112	138	119	99	129	111	88	122	100	80	115	92	62	106	84	90
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	139	141	141	128	141	138	118	141	128	108	141	120	96	135	113	86
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	127	141	141	121	141	129	109	141	129	94	132	108	83	122	96	62	114	85	95	103	66	85
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	147	147	133	147	136	123	147	127	115	146	119	104
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	136	147	137	124	147	126	114	143	116	100	134	104	88	126	93	69	119	83	59
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	142	131	151	134	123	146	126	116
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	151	132	151	143	122	142	124	114	132	116	101	123	107	90	115	97	82
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	125	141	131	115	141	122	103	132	115	92	124	105	83	118	95	66	111	88	58
			Exposed	141	141	136	141	141	128	141	139	122	141	132	116	141	126	110	141	121	102	135	117	95	125	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	133	114	141	122	99	136	114	87	126	100	67	118	90	58	108	81	89
			Exposed	141	141	138	141	141	129	141	141	122	141	135	116	141	128	107	141	122	98	139	116	90	127	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
			Exposed	147	147	147	147	147	147	147	147	137	147	144	130	147	136	123	147	129	117	147	123	110	138	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	147	136	151	136	125	147	127	117	136	119	106	126	112	95	118	101	86
			Exposed	151	151	151	151	151	151	151	151	145	151	149	137	151	142	130	151	135	124	151	130	119	137	120	107	125	110	93	116	98	83	103	88	62	91	79	94	82	62	85
	D	0-7	Interior	141	141	141	141	141	141	141	141	137	141	141	130	141	141	125	141	141	119	141	130	114	140	121	101	130	112	90	122	101	80	115	92	62	106	84	90	97	72	82
			Exposed	141	141	124	141	134	118	141	127	112	141	122	103	135	117	95	129	111	89	124	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	141	141	141	141	141	139	141	141	131	141	141	131	141	141	125	141	141	119	141	132	113	141	121	97	133	110	84	123	96	63	114	85	95	102	65	85	91	58	65
			Exposed	141	141	124	141	137	117	141	129	109	141	122	99	139	116	90	132	109	83	126	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	148	148	148	148	148	148	148	148	148	148	148	148	148	148	141	148	148	133	148	141	127	148	128	116	144	118	101	134	105	88	126	93	69	118	83	58	111	62	91
			Exposed	148	148	141	148	146	132	148	137	124	148	129	117	148	123	110	143	117	100	137	110	92	126	93	73	118	81	57	107	60	87	96	92	66	87	82	58	79	62	54
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	141	152	146	135	152	134	124	144	125	114	132	117	101	123	107	90	115	96	81	102	88	62
			Exposed	152	152	148	152	151	139	152	143	132	152	136	125	151	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	60	86	66	90	65	58	81	57	87	62
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	127	111	127	120	100	127	114	91
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	121	127	127	112	127	119	99	127	111	88	121	100	80	115	92	62	106	84	90
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	128	108	128	120	96	128	113	86
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	121	128	128	109	128	128	119	94	128	108	83	122	96	62	114	85	95	103	66	85
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	136	123	136	127	115	136	119	104
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	124	136	126	114	136	116	100	134	104	88	126	93	69	119	83	59
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	131	141	134	123	141	126	116
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	132	141	133	122	141	124	114	132	116	101	123	107	90	115	97	82
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	115	127	122	103	127	115	92	124	105	83	118	95	66	111	88	58
			Exposed	127	127	127	127	127	127	127	127	122	127	127	116	127	126	110	127	121	102	127	117	95	125	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	114	128	122	99	128	114	87	126	100	67	118	90	58	108	81	89
			Exposed	128	128	128	128	128	128	128	128	122	128	128	116	128	128	107	128	122	98	128	116	90	127	101	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	128	136	130	118	136	120	105	136	110	92	129	97	82	122	87	62
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	124	136	126	114	136	116	100	134	104	88	126	93	69	119	83	59
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	137	141	141	130	141	135	124	141	130	119	137	120	107	125	110	93	116	98	83	103	88	62	91	79	94	82	62	85
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	132	141	133	122	141	124	114	132	116	101	123	107	90	115	97	82
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	125	127	127	119	127	127	114	127	121	101	127	112	90	122	101	80	115	92	62	106	84	90	97	72	82	97	72	82
			Exposed	127	127	124	127	127	118	127	127	112	127	122	103	127	117	95	127	111	89	124	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	119	128	128	113	128	121	97	128	110	84	123	96	63	114	85	95	102	65	85	91	58	65
			Exposed	128	128	124	128	128	117	128	128	109	128	122	99	128	116	90	128	109	83	126	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	133	138	138	127	138	128	116	138	118	101	134	105	88	126	93	69	118	83	58	111	62	91
			Exposed	138	138	138	138	138	132	138	137	124	138	129	117	138	123	110	138	117	100	137	110	92	126	93	73	118	81	57	107	60	87	96	92	66	87	82	58	79	62	54
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	141	143	143	135	143	134	124	142	125	114	132	117	101	123	107	90	115	96	81	102	88	62
			Exposed	143	143	143	143	143	139	143	143	132	143	136	125	143	130	119	143	124	114	135	119	105	123	108	91	113	95	80	98	85	60	86	66	90	65	58	81	57	87	62

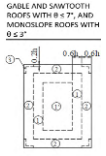
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

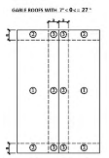
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

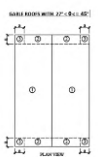
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

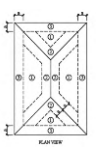












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

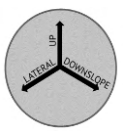
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

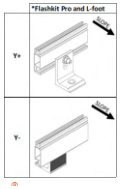
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	100	118	114	91
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	99	118	111	88	118	100	80	115	92	62	106	84	90
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	83	119	96	62	114	85	95	103	66	85
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	83	119	96	62	114	85	95	103	66	85
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	124	128	128	114	128	116	100	128	104	88	126	93	69	119	83	59
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	124	128	128	114	128	116	100	128	104	88	126	93	69	119	83	59
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	123*	124*	124*	116	124*	124*	116
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122	124*	124*	114	124*	116	101	123*	107	90	115	97	82
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	115	118	118	103	118	115	92	118	105	83	118	95	66	111	88	58
			Exposed	118	118	118	118	118	118	118	118	118	116	118	118	110	118	118	102	118	118	117	95	118	105	84	117	94	64	107	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	119	99	119	114	87	119	100	67	118	90	58	108	81	89
			Exposed	119	119	119	119	119	119	119	119	119	116	119	119	107	119	119	98	119	116	90	119	103	70	117	88	98	104	70	86	92	58	65	82	89	57	62	80	54			
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	120	105	128	110	92	128	97	82	122	87	62			
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	123	128	128	117	128	123	110	128	112	93	128	96	81	120	84	59	112	63	91	101	96	82	92	87	62			
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	117	124*	119	106	124*	112	95	118	101	86
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119	124*	120	107	124*	110	93	116	98	83	103	88	62	91	79	94	82	62	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	114	118	118	101	118	112	90	118	101	80	115	92	62	106	84	90	97	72	82
			Exposed	118	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	46
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	113	119	119	97	119	110	84	119	96	63	114	85	95	102	65	85
			Exposed	119	119	119	119	119	117	119	119	109	119	119	99	119	116	90	119	109	83	119	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	49	90	57	43
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	127	130	128	116	130	110	105	88	126	93	69	118	83	58	111	62	91		
			Exposed	130	130	130	130	130	130	130	130	124	130	129	117	130	123	110	130	117	100	130	110	92	126	93	73	118	81	57	107	60	87	96	92	66	87	82	58	79	62	51
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	124	129	117	101	123	107	90	115	96	81	102	88	62			
			Exposed	129	129	129	129	129	129	129	129	129	125	129	129	119	129	124	114	129	119	105	123	108	91	113	95	80	98	85	60	86	66	90	65	58	81	57	87	62			
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	100	115	114	91			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	111	115	115	99	115	111	88	115	112	90	115	92	62	106	84	90
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	108	116	116	96	116	113	86
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	109	116	116	94	116	108	83	116	96	62	114	85	95	103	66	85
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104	114*	114*	104
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104	114*	104	88	114*	93	69	114*	83	59
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	110*	97	82			
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	103	115	115	92	115	105	83	115	95	66	111	88	58
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	102	115	115	95	115	105	84	115	94	64	107	85	91	97	73	83	89	61	65	82	87	58		
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	114	116	116	99	116	114	87	116	100	67	116	90	58	108	81	89
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	107	116	116	98	116	116	90	116	101	70	116	88	98	104	70	86	92	58	65	82	89	57	62	80	54		
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	105*	114*	110*	92	114*	97	82	114*	87	62
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	110*	114*	112*	93	114*	96	81	114*	84	59	112*	63	91	101	96	82	92	87	62		
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	110*	95	110*	110*	101*	86
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	110*	110*	93	110*	98*	83	103*	88	62	91	79	94	82	62	85
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	114	118	118	101	118	112	90	118	101	80	115	92	62	106	84	90	97	72	82
			Exposed	118	118	118	118	118	118	118	118	112	118	118	103	118	117	95	118	111	89	118	104	83	115	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	46
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	113	118	118	97	118	110	84	119	96	63	114	85	95	102	65	85	91	58	65
			Exposed	118	118	118	118	118	117	118	118	109	118	118	99	118	116	90	118	109	83	118	100	65	115	86	95	100	64	83	88	95	62	69	85	54	58	64	49	90	57	43
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	116*	119*	118*	101	119*	105	88	119*	93	69	118*	83	58
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	117*	119*	119*	110	119*	117*	100	119*	110	92	119*	93	73	118*	81	57	107	60	87	96	92	66	87	82	58	79	62	51		
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	101	115*	107*	90	115*	96	81
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	108*	91	113*	95	80	98	85	60	86	66	90	65	58	81	57	87	62
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	100	108	108	91			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	99	108	108	88	108	100	80	108	92	62	106	84	90
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	108*	113*	113*	96	113*	113*	86
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	109*	113*	113*	96	113*	108*	83	113*	96	62	113*	85	95	103	66	85
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	100*	102*	102*	88*	102*	93*	69	102*	83	59
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	82*
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	103	108	108	92	108	105	83	108	95	66	108	88	58			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	102	108	108	95	108	105	84	108	94	64	107	85	91	97	73	83	89	61	65	82	87	58		
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	99	113*	113*	87	113*	100	67	113*	90	58	108*	81	89			
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	107*	113*	113*	98	113*	113*	90	113*	101	70	113*	88	98	104	70	86	92	58	65	82	89	57	62	80	54		
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	97*	82	102*	87*	62
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	93*	102*	96*	81	102*	84	59	102*	63	91	101*	96	82
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	95*	96*	96*	86*
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	93*	96*	96*	81	102*	84	59	102*	63	91	101*	96	82
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	101	112	112	90	112	101	80	112	92	62	106	84	90	97	72	82
			Exposed	112	112	112	112	112	112	112	112	112	112	112	103	112	112	95	112	111	89	112	104	83	112	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	46
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	113	116*	116*	97	116*	110	84	116*	96	63	112	85	95	102	65	85	91	58	65
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	109	116*	116*	99	116*	116*	90	116*	109	83	116*	100	65	115*	86	95	100	64	83	88	95	62	69	85	54	58	64	49	90	57	43
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	101*	108*	105*	88	108*	93	69	108*	83	58	108*	62	91
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	100*	108*	108*	92	108*	93	73	108*	81	57	107*	60	87	96*	92	66	87	82	58	79	62	51
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	101*	105*	105*	90*	105*	96*	81	102*	88	62			
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	91*	105*	95*	80	98*	85	60	86	66	90	65	58	81	57	87	62

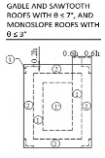
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

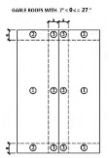
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

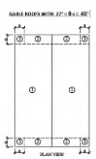
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

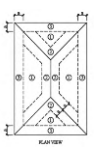












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

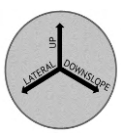
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

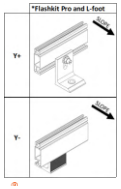
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	91
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	88	99	99	80	99	92	62	99	84	90
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	96*	105*	105*	86
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	94*	105*	105*	83	105*	96*	62	105*	85	95	103*	66	85
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	69	87*	87*	69	87*	83*	59
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	92	99	99	83	99	95	66	99	88	58
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	95	99	99	84	99	94	64	99	85	91	97	73	83	89	61	65	82	87	58
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	99*	105*	105*	87	105*	100*	67	105*	90*	58	104*	81	89
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	98	105*	105*	90	105*	101*	70	105*	88	98	104*	70	86	92*	58	65	82	89	57	62	80	54
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	62
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	59	87*	87*	63	91	87*	96	82	87*	87	62
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	62	82*	79*	94	82*	62	85
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	101	104	104	90	104	101	80	104	92	62	104	84	90	97	72	82
			Exposed	104	104	104	104	104	104	104	104	104	104	104	103	104	104	95	104	104	89	104	104	83	104	92	63	104	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	97	110*	110*	84	110*	96	63	109*	85	95	102*	65	85	91	58	65
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	109*	110*	110*	99*	110*	110*	90	110*	109*	83	110*	100*	65	110*	86	95	100*	64	83	88	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	88*	95*	93*	69	95*	83*	58	95*	62	91
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	92*	95*	93*	73	95*	81*	57	95*	60	87	95*	92	66	87*	82	58	79	62	51
		27-45	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	81*	90*	88*	62
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	80*	90*	85*	60	86*	66	90	65	58	81	57	87	62
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	91
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	80	92	92	62	92	84	90
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	86*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	83*	91*	91*	62	91*	85*	95	91*	66	85
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	75*	59
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	83	92	92	66	92	88	58
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	84	92	92	64	92	85	91	92	84	73	83	89	61	65	82	87	58
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	89
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	70	91*	88*	98	91*	70	86	91*	58	65	82*	89	57	62	80	54
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	59	75*	63	91	75*	96*	82	75*	87	62
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	63*	71*	71*	94*	71*	62*	85
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	92	62	97	84	90	97	72	82
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	95	97	97	89	97	97	83	97	97	63	97	83	89	94	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	97*	100*	100*	84	100*	96*	63	100*	85*	95	100*	65	85
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	99*	100*	100*	90*	100*	100*	83	100*	100*	65	100*	86*	95	100*	86*	95	100*	64	83	88*	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	69	83*	83*	58	83*	62	91
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*	83*	81*	57	83*	60	87	83*	92	66	83*	82	58	79*	62	51
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	62
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	60	78*	67*	90	65	58	81	57	87	62
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	80	87	87	62	87	84	90
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	62	80*	80*	95	80*	66	85
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	59*
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	87	66	87	87	58
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	64	87	85	91	87	73	83	87	61	65	82	87	58
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	67	80*	80*	58	80*	80*	89
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	70*	80*	80*	98	80*	70*	86	80*	58	65	80*	89	57	62	80	54
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	63*	63*	94*	63*	62*	85*
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90	91	91	80	91	91	62	91	84	90	91	72	82
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	83	91	91	89	91	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	63	88*	85*	95	88*	65	85	88*	58	65
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	95	88*	64	83	88*	95	62	69	85	54	58	64	48	90	57	43
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69*	73*	73*	58	73*	62*	91
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	60	87	73*	73*	92	66	73*	82	58	73*	62	51
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	62*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	66*	90*	65*	58	81	57	87	62

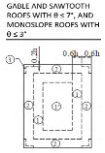
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

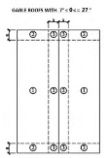
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

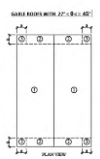
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

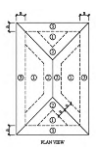












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

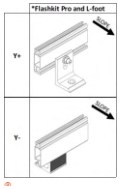
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	62	82	82	90		
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	62*	72*	72*	95*	72*	66*	85		
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	66	82	82	58		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	64	82	82	91	82	73
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	67*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	98*	72*	70*	86	72*	58
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	80	86	86	62	86	84	90	86	72	82
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	63	86	83	89	86	66	79	85	91	61	74	83	54	61	70	48
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	63	79*	79*	95	79*	65	85	79*	58	65
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	65	79*	79*	95	79*	64	83	79*	95	62	69*	85	54	58	64	48	90	57	43
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	58*	66*	62*	91*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	57*	66*	60*	87*	66*	92*	66	66*	82	58	66*	62	51
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60*	62*	62*	90*	62*	58*	81*	57*	87*	62
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	90
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	95*	65*	65*
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	66	78	78	58		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	64	78	78	91	78	73
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	58*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	97*	65*	65*	86*	65*	58*	65	65*	89*	57	62*	80	51
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	62
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	82	82	82	82	82	82	82	90	82	72	82		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	63	82	82	89	82	66	79	82	91	61	74	83	54	61	70	46
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	63*	72*	72*	95*	72*	65*	85	72*	58	65
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	65*	72*	72*	95*	72*	64*	83	72*	95*	62	69*	85	54	58	64	48	90	57	43
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	58*	59*	59*	89*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	87*	59*	59*	57*	59*	59*	87*	59*	89*	66	59*	82*	58	59*	62	51
		27-45	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	81*	85*	85*	62

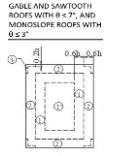
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

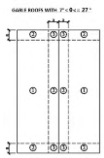
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

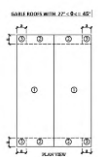
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

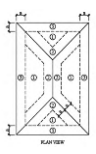












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

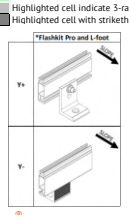
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	114	120	120	108	120	115	97	120	105	87	116	96	80	108	89	65	100	82	53	93	71	45
			Exposed	120	120	118	120	120	112	120	120	105	120	116	98	120	111	92	120	104	87	118	99	82	109	89	66	99	81	52	90	67	42	83	56	35	73	47	46	62	40	41
		7-20	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	118*	120*	120*	113	120*	120*	106	120*	115*	94	120*	104	85	116*	94	72	107	86	57	98	77	46	90	62	38
			Exposed	120*	120*	117*	120*	120*	111	120*	120*	103	120*	116*	96	120*	110	90	120*	103	84	118*	97	78	108	86	58	97	74	44	88	58	35	80	46	46	64	37	41	52	49	36
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	111*	98	116*	100	88	116*	91	81	113*	84	64	104	73	52
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	103	116*	110*	97	116*	103	91	116*	92	81	111*	83	62	101	67	48	93	53	38	86	43	49	79	35	44
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	107*	112*	110*	97	112*	101*	89	107*	93	82	98	86	69
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	100	112*	101*	89	105*	92	81	95	84	64	87	72	51	79	59	42	63	49	35
	C	0-7	Interior	120	120	120	120	120	115	120	120	109	120	119	102	120	114	95	120	108	90	120	102	85	113	92	72	102	84	56	93	73	46	86	60	37	79	50	49	67	43	44
			Exposed	120	114	95	120	107	89	119	100	83	114	93	74	108	88	64	101	83	55	96	77	49	87	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	120*	120*	120*	120*	120*	115*	120*	120*	107	120*	119*	100	120*	114	93	120*	107	87	120*	100	82	113	90	64	101	81	49	91	63	38	83	50	49	71	41	43	57	34	38
			Exposed	120*	114	93	120*	105	86	119*	97	80	114	91	66	107	85	56	100	80	48	94	68	41	84	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	115*	116*	116*	108*	116*	114*	101	116*	108*	95	116*	96	84	115*	86	69	105	75	53	96	58	42	89	47	35	82	38	46			
			Exposed	116*	116*	107	116*	113*	99	116*	104	92	116*	97	86	116*	91	80	114*	85	67	108*	80	57	97	59	43	88	45	34	80	36	44	65	47	39	53	41	34	45	37	31
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	110*	112*	112*	103*	112*	105*	93	110*	95	84	99	87	70	90	79	56	83	65	46	70	54	38
			Exposed	112*	112*	112*	112*	112*	108*	112*	112*	101*	112*	106*	94	112*	100	88	109*	94	83	102*	89	76	91	80	57	82	63	44	65	50	35	51	41	47	41	34	41	34	46	37
	D	0-7	Interior	120	120	111	120	120	103	120	115	96	120	109	90	120	102	85	116	96	80	112	91	70	101	83	54	91	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	120	102	85	115	95	77	109	89	65	102	84	56	96	77	48	91	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	120*	120*	110	120*	120*	101	120*	115*	94	120*	107	88	120*	100	82	116*	94	73	111	89	62	99	78	46	89	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	120*	100	82	115*	93	70	108	86	57	100	81	48	94	68	41	88	58	35	83	50	49	65	38	41	49	48	36	39	41	34	39	43	31	44	32	24	39	28	21
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	114*	101	116*	107	95	116*	101	89	116*	95	83	113*	84	66	103	69	50	93	54	39	86	43	49	78	35	44	64	47	39
			Exposed	116*	107	94	116*	99	87	116*	92	81	114*	86	68	108*	80	57	102	68	49	96	58	42	86	43	50	76	34	43	60	45	37	49	39	33	41	35	29	35	31	26
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	110*	112*	112*	103*	112*	112*	104*	92	107*	93	82	96	85	66	87	73	52	79	59	42	62	49	35	50	41	47
			Exposed	112*	112*	103*	112*	108*	96	112*	101*	89	109*	95	83	102*	89	76	96	84	65	90	78	56	80	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	97	111	105	87	111	96	80	108	89	65	100	82	53	93	71	45
			Exposed	111	111	96	111	107	89	111	100	83	111	93	74	108	88	64	101	83	55	96	77	49	87	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	112	116*	116*	106	116*	115*	94	116*	104	85	116*	94	72	107	86	57	98	77	46	90	62	38
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	103	116*	116*	96	116*	110	90	116*	103	84	116*	97	78	108	86	58	97	74	44	88	58	35	80	46	46	64	37	41	52	49	36
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	111*	98	116*	100	88	116*	91	81	113*	84	64	104	73	52
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	103	116*	110*	97	116*	103	91	116*	92	81	111*	83	62	101	67	48	93	53	38	86	43	49	79	35	44
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	110*	97	112*	101*	89	107*	93	82	98	86	69			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	100	112*	101*	89	105*	92	81	95	84	64	87	72	51	79	59	42	63	49	35
	C	0-7	Interior	111	111	111	111	111	111	111	111	109	111	111	102	111	111	95	111	108	90	111	102	85	111	92	72	102	84	56	93	73	46	86	60	37	79	50	49	67	43	44
			Exposed	111	111	96	111	107	89	111	100	83	111	93	74	108	88	64	101	83	55	96	77	49	87	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	112	116*	116*	106	116*	115*	94	116*	104	85	116*	94	72	107	86	57	98	77	46	90	62	38
			Exposed	116*	112	93	116*	105	86	116*	97	80	112	91	66	107	85	56	100	80	48	94	68	41	84	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	115*	116*	116*	108*	116*	114*	101	116*	108*	95	116*	96	84	115*	86	69	105	75	53	96	58	42	89	47	35	82	38	46			
			Exposed	116*	116*	107	116*	113*	99	116*	104	92	116*	97	86	116*	91	80	114*	85	67	108*	80	57	97	59	43	88	45	34	80	36	44	65	47	39	53	41	34	45	37	31
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	110*	97	112*	101*	89	107*	93	82	98	86	69			
			Exposed	112*	112*	112*	112*	112*	108*	112*	112*	101*	112*	106*	94	112*	100	88	109*	94	83	102*	89	76	91	80	57	82	63	44	65	50	35	51	41	47	41	34	41	34	46	37
	D	0-7	Interior	111	111	111	111	111	103	111	111	96	111	109	90	111	102	85	111	96	80	111	91	70	101	83	54	91	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	111	102	85	111	95	77	109	89	65	102	84	56	96	77	48	91	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	117	117	110	117*	117*	101	117*	115*	94	117*	107	88	117*	100	82	116*	94	73	111	89	62	99	78	46	89	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	117*	100	82	115*	93	70	108	86	57	100	81	48	94	68	41	88	58	35	83	50	49	65	38	41	49	48	36	39	41	34	39	43	31	44	32	24	39	28	21
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	114*	101	116*	107	95	116*	101	89	116*	95	83	113*	84	66	103	69	50	93	54	39	86	43	49	78	35	44	64	47	39
			Exposed	116*	107	94	116*	99	87	116*	92	81	114*	86	68	108*	80	57	102	68	49	96	58	42	86	43	50	76	34	43	60	45	37	49	39	33	41	35	29	35	31	26
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	110*	112*	112*	103*	112*	110*	97	112*	104*	92	107*	93	82	96	85	66	87	73	52	79	59	42	62	49	35	50	41	47
			Exposed	112*	112*	103*	112*	108*	96	112*	101*	89	109*	95	83	102*	89	76	96	84	65	90	78	56	80	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	87	96	96	80	96	89	65	96	82	53	93	71	45
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	87	96	96	82	96	89	66	96	81	52	90	67	42	83	56	35	73	47	46	62	40	41
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	85	96	94	72	96	86	57	96	77	46	90	62	38
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	78	96	86	58	96	74	44	88	58	35	80	46	46	64	37	41	52	49	36
		20-27	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	98*	106*	100*	88	106*	91	81	106*	84	64	104*	73	52
			Exposed	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	103*	106*	106*	97*	106*	103*	91	106*	92	81	106*	83	62	101*	67	48	93	53	38	86	43	49	79	35	44
		27-45	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	100*	101*	101*	97*	101*	101*	89*	101*	92*	81	95*	84	64	87*	72	51
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	100*	101*	101*	89*	101*	92*	81	95*	84	64	87*	72	51	79	59	42	63	49	35
	C	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	72	96	84	56	93	73	46	86	60	37	79	50	49	67	43	44
			Exposed	96	96	95	96	96	89	96	96	83	96	93	74	96	88	64	96	83	55	96	77	49	87	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	85	96	94	72	96	86	57	96	77	46	90	62	38
			Exposed	96	96	93	96	96	86	96	96	80	96	91	66	96	85	56	96	80	48	94	68	41	84	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	95*	106*	96*	84	106*	86	69	105*	75	53	96*	58	42	89	47	35
			Exposed	106*	106*	106*	106*	106*	99*	106*	104*	92	106*	97*	86	106*	91	80	106*	85	67	106*	80	57	97*	59	43	88	45	34	80	36	44	65	47	39	53	41	34	45	37	31
		27-45	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	93*	101*	95*	84	99*	87*	70	90*	79	56	83	65	46	70	54	38
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	94*	101*	100*	88*	101*	94*	83	101*	89*	76	91*	80	57	82	63	44	65	50	35	51	41	47	41	34	41	34	46	37	
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	90	96	96	85	96	96	80	96	91	70	96	83	54	91	69	43	84	56	35	73	47	46	61	39	41	51	51	36	
			Exposed	96	96	85	96	95	77	96	89	65	96	84	56	96	77	48	91	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	96	96	96	96	96	96	96	96	94	96	96	88	96	96	82	96	94	73	96	89	62	96	78	46	89	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	96	96	82	96	93	70	96	86	57	96	81	48	94	68	41	88	58	35	83	50	49	65	38	41	49	48	36	39	41	34	39	43	31	44	32	24	39	28	21
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	109*	111*	111*	101*	111*	107*	95	111*	101*	89	111*	95	83	111*	84	66	103*	69	50	93	54	39	86	43	49	78	35	44	64	47	39	
			Exposed	111*	107*	94	111*	99	87	111*	92	81	111*	86	68	108*	80	57	102*	68	49	96	58	42	86	43	50	76	34	43	60	45	37	49	39	33	41	35	29	35	31	26
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	103*	107*	107*	97*	107*	104*	92*	107*	93*	82	96*	85	66	87	73	52	79	59	42	62	49	35	50	41	47	
			Exposed	107*	107*	103*	107*	107*	96*	107*	101*	89	107*	95*	83	102*	89	76	96*	84	65	90	78	56	80	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31

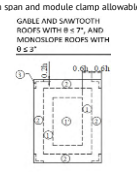
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

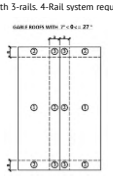
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

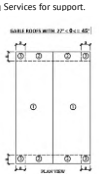
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

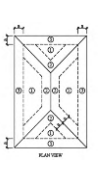












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

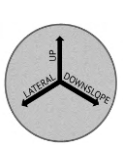
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

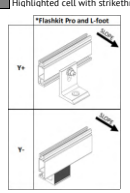
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	65	86	86	82	53	86	71	45
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	66	86	81	52	86	67	42	83	56	35	73	47	46	62	40	41
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	72	94*	94*	72	94*	86*	57	94*	77	46	90*	62	38			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	94*	94*	84*	94*	94*	78	94*	86*	58	94*	74	44	88*	58	35	80	46	46	64	37	41	52	49	36			
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	73*	52			
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	62	80*	67	48	80*	53	38	80*	43	49	79*	35	44
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	64*	74*	74*	64*	74*	72*	51	74*	59	42	64*	49	35
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	72	86	84	56	86	73	46	86	60	37	79	50	49	67	43	44
			Exposed	86	86	86	86	86	86	86	83	86	86	74	86	86	86	84	86	83	55	86	77	49	86	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	87*	94*	94*	82	94*	90*	64	94*	81	49	91*	63	38	83*	50	49	71	41	43	57	34	38
			Exposed	94*	94*	93*	94*	94*	86*	94*	94*	80	94*	91*	66	94*	85*	56	94*	80	48	94*	68	41	84*	51	50	68	40	43	53	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	69*	80*	75*	53	80*	58	42	80*	47	35	80*	38	46
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	57	80*	80*	57	80*	59	43	80*	45	34	80*	36	44	65	47	39	53	41	34
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	70*	74*	74*	56	74*	65*	46	70*	54	38
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	57	74*	63*	44	65*	50	35	51	41	47	41	34	41	34	46	37
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	80	86	86	70	86	83	54	86	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	86	86	85	86	86	77	86	86	65	86	84	56	86	77	48	86	68	42	86	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	86	96*	96*	82	96*	94*	73	96*	86	62	96*	78	46	86	59	36	81	46	47	64	37	41	51	49	36	42	43	32
			Exposed	96*	96*	82	96*	93*	70	96*	86	57	96*	81	48	94*	68	41	86	58	35	83	50	49	65	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	83*	87*	84*	66	87*	54	39	86*	43	49	78*	35	44	64	47	39						
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	81*	87*	86*	68	87*	80*	57	87*	68	49	87*	58	42	86*	43	50	76*	34	43	60	45	37	49	39	33	41	35	29	35	31	26
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	66	81*	73*	52	79*	59	42	62	49	35						
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76*	81*	81*	65	81*	78*	56	80*	60	43	60	47	34	46	38	45	37	49	39	48	43	35	43	39	31			
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	80	83	83	82	53	83	71	45
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	66	83	81	52	83	67	42	83	56	35	73	47	46	62	40	41
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	72*	76*	76*	57	76*	76*	46	76*	62	38
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	58	76*	74*	44	76*	58	35	76*	46	46	64	37	41	52	49	36
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	52
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	53*	38	62*	43	49	62*	35	44
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	51*	59*	59*	42	59*	50*	35
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	72	83	83	56	83	73	46	83	60	37	79	50	49	67	43	44
			Exposed	83	83	83	83	83	83	83	83	83	83	83	74	83	83	64	83	83	55	83	77	49	83	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	66*	76*	76*	56	76*	76*	48	76*	68*	41	76*	51	50	68*	40	43	53	50	37	42	43	32	35	38	29	46	34	25
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	58*	42	62*	47	35	62*	38	46
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	59*	43	62*	45	34	62*	36	44	62*	47	39	53*	41	34
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	56*	59*	59*	46	59*	54*	38
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	59*	44	59*	50*	35	51*	41	47	41	34	41	34	46	37
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	80	85	85	70	85	83	54	85	69	43	84	56	35	73	47	46	61	39	41	51	51	36
			Exposed	85	85	85	85	85	77	85	85	65	85	84	56	85	77	48	85	68	42	85	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	73*	84*	84*	62	84*	78*	46	84*	59	36	81*	46	47	64	37	41	51	49	36	42	43	32
			Exposed	84*	84*	82*	84*	84*	70	84*	84*	57	84*	81*	48	84*	68	41	84*	58	35	83*	50	49	65	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	68*	68*	50	68*	54	39	68*	43	49	68*	35	44	64*	47	39
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57	68*	68*	49	68*	58*	42	68*	43	50	68*	34	43	60*	45	37	49	39	33	41	35	29	35	31	26
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	52	64*	59*	42	62*	49	35	50	41	47
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	56*	64*	60*	43	60*	47	34	46	38	45	37	49	39	48	43	35	43	39	31
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	65	77	77	53	77	71	45			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	52	77	67	42	77	66	35	73	47	46	62	40	41
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	46	62*	62*	38
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	58*	62*	62*	44	62*	58*	35	62*	46	46	62*	37	41	52	49	36
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	48*	51*	51*	38	51*	43	49	51*	35	44
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	35
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	77	73	46	77	60	37	77	50	49	67	43	44			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	74	77	77	64	77	77	55	77	77	49	77	61	38	77	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	50	62*	62*	49	62*	41	43
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	56*	62*	62*	48	62*	62*	41	62*	51	50	62*	40	43	53*	50	37	42	43	32	35	38	29	46	34	25
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	42	51*	47*	35	51*	38	46
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45*	51*	36	44	51*	47	39	51*	41	34	45*	37	31
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	38
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	35	48*	41*	47	41*	34	41	34	46	37
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	70	80	80	54	80	69	43	80	56	35	73	47	46	61	39	41	51	51	36
			Exposed	80	80	80	80	80	80	80	80	65	80	80	56	80	77	48	80	68	42	80	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62*	68*	68*	46	68*	59*	36	68*	46	47	64*	37	41	51	49	36	42	43	32
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	57	68*	68*	48	68*	68*	41	68*	58*	35	68*	50	49	65*	38	41	49	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	54*	39	56*	43	49	56*	35	44	56*	47	39
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	49*	56*	56*	42	56*	43	50	56*	34	43	49*	39	33	49*	39	33	41	35	29	35	31	26
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	42	53*	49*	35	50*	41	47
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	43	53*	47*	34	47*	38	45	37	49	39	48	43	35	43	39	31

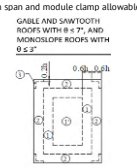
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

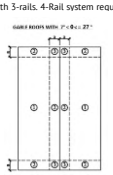
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

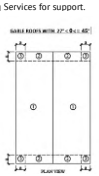
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

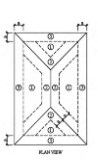












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

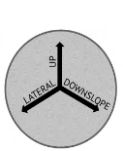
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

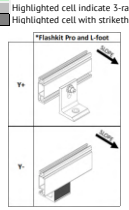
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	53	70	70	45
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	52	70	67	42	70	56	35	70	47	46	62	40	41
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	53*	38
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	44	53*	53*	35	53*	46*	46	53*	37	41	52*	49	36
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	49	43*	35	44
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	35*
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	56	70	70	46	70	60	37	70	50	49	67	43	44
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	55	70	70	49	70	61	38	70	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	38	53*	50*	49	53*	41	43	53*	34	38
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	48*	53*	53*	41	53*	51*	50	53*	40	43	53*	50	37	42	43	32	53*	38	29	46	34	25
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	35	43*	38*	46
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36	44	43*	37	43*	37	31
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	38*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36*	41*	41*	47	41*	35*	41	34	46	37			
70	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	54	74	69	43	74	56	35	73	47	46	61	39	41	51	51	36
			Exposed	74	74	74	74	74	74	74	74	65	74	74	56	74	74	48	74	68	42	74	60	37	74	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	46	58*	58*	36	58*	46	47	58*	37	41	51*	49	36	42	43	32
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	57*	58*	58*	48	58*	58*	41	58*	58*	35	58*	50*	49	58*	38	41	49*	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	39	48*	43*	49	48*	35	44	48*	47	39
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	43*	50	48*	34	43	48*	45	37	48*	39	33	41*	35	29	35	31	26
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	45*	45*	42*	45*	45*	45*	35	45*	41*	47
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	43*	45*	45*	34	45*	38	45	37	49	39	48	43	35	43	39	31
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	53	65	65	45
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	52	65	65	42	65	56	35	65	47	46	62	40	41
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	35	45*	45*	46	45*	37	41	45*	49	36
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	49*	38*	35*	44
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*
70	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	56	65	65	46	65	60	37	65	50	49	65	43	44
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	55	65	65	49	65	61	38	65	49	48	63	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	45*	50	45*	40*	43	45*	50	37	42*	43	32	35	38	29	46	34	25
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	46
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	36*	44	38*	47	39	38*	41	34	38*	37	31
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	47*	36*	34*	41
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	54	69	69	43	69	56	35	69	47	46	61	39	41	51	51	36
			Exposed	69	69	69	69	69	69	69	69	65	69	69	56	69	69	48	69	68	42	69	60	37	69	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	36	50*	46*	47	50*	37	41	50*	49	36	42	43	32
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	48*	50*	50*	41	50*	50*	35	50*	50*	49	50*	38	41	49*	48	36	39	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	49	41*	35	44	41*	47	39			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	50	41*	34	43	41*	45	37	41*	39	33	41*	35	29	35	31	26
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	47
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	38*	45	37*	49	39	48	43	35	43	39	31
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	53	61	61	45
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	52	61	61	42	61	56	35	61	47	46	61	40	41
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	46	40*	37*	41	40*	49	36
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	49*	50*	50*	44*
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	49	61	43	44
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	55	61	61	49	61	61	38	61	49	48	61	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	50	40*	40*	43	40*	50	37	40*	43	32	35*	38	29	46	34	25
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	45*	50*	47*	39	50*	42	34	50*	37	31
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	46*	37
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	54	65	65	43	65	56	35	65	47	46	61	39	41	51	51	36
			Exposed	65	65	65	65	65	65	65	65	65	65	65	56	65	65	48	65	65	42	65	65	37	65	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	36	44*	44*	47	44*	37	41	44*	49	36	42*	43	32
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	35	44*	44*	49	44*	38*	41	44*	48	36	39*	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	49*	37*	35*	44	37*	47*	39
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	50*	37*	34*	43	37*	45	37	37*	39	33	37*	35*	29	35*	31	26
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	47*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	34*	35*	35*	45*	35*	49*	39	48*	43	36	43	39	31

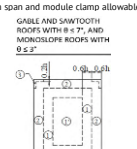
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

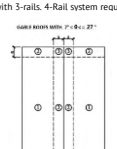
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

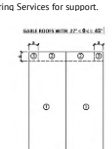
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

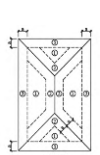












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

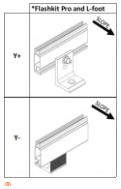
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	45
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	52	58	58	42	58	56	35	58	47	46	58	40	41
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	46*	36*	36*	41	36*	49*	36
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	46	58	58	37	58	50	49	58	43	44
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	49	58	58	38	58	49	48	58	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*	36*	36*	43	36*	34*	38
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	50*	36*	36*	43	36*	50*	37	36*	43	32	35*	38	29	46*	34	25
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	42*	34	45*	37	31
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	37*
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54	61	61	43	61	56	35	61	47	46	61	39	41	51	51	36
			Exposed	61	61	61	61	61	61	61	61	61	61	61	56	61	61	48	61	61	42	61	60	37	61	47	47	59	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	47	40*	37*	41	40*	49	36	40*	43	32
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	49	40*	38*	41	40*	48	36	39*	41	31	49	36	27	44	32	24	39	28	21
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	47*	39
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	45*	37	49*	39	33	49*	35	29	49*	31	26
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	39	47*	43*	35	43*	39	31
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	45
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	42	55	55	35	55	47	46	55	40	41
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	41	49*	49*	36
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	46	55	55	37	55	50	49	55	43	44
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	49	55	55	38	55	49	48	55	40	42	52	51	37	43	45	32	37	40	29
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	49*	39
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	49*	37	49*	43*	32	49*	38	29	46*	34	25
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	34	40*	37*	31
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	43	58	56	35	58	54	46	58	39	41	51	51	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	48	58	58	42	58	58	37	58	47	47	58	38	40	48	49	35	40	43	30	34	38	27	46	34	24
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	47*	36*	36*	41	36*	49*	36	36*	43	32
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*	36*	36*	41	36*	48*	36	36*	41	31	49*	36	27	44	32	24	39	28	21
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	39*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	43*	45*	45*	37	45*	39*	33	45*	35	29	45*	31	26
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	35	43*	39*	31

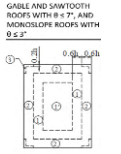
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

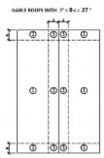
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

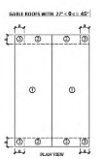
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

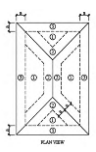












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

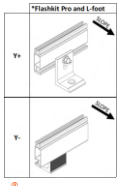
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	148	149	149	136	149	143	126	149	134	118	146	126	109	138	119	98	130	113	90
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	131	149	142	125	149	136	120	147	126	110	137	118	97	128	109	87	120	99	75	114	90	97	104	83	89
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	138	149	149	126	149	137	117	149	127	106	143	119	94	133	110	84
			Exposed	149	149	149	149	149	149	149	149	148	149	149	140	149	149	132	149	148	126	149	140	120	149	128	107	141	118	92	130	106	81	121	94	61	113	84	93	101	64	84
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	132	150	135	122	150	126	114	145	118	102
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	150	135	150	136	123	150	124	113	142	115	97	132	102	86	125	91	65	118	82	100
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	141	130	151	132	122	144	125	115
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	130	151	131	121	141	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	135	149	146	129	149	140	123	149	130	114	140	121	101	131	114	91	123	103	82	117	94	64	109	86	93
			Exposed	149	149	134	149	144	127	149	137	121	149	131	115	146	125	108	139	120	100	134	116	94	124	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	149	149	149	149	149	149	149	149	149	144	149	149	136	149	149	129	149	145	123	149	132	113	146	121	97	134	112	85	125	98	64	117	88	97	106	77	88		
			Exposed	149	149	136	149	149	128	149	141	121	149	133	114	149	126	105	145	120	96	138	115	89	125	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	50
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	139	150	140	126	150	128	116	146	119	103	136	108	90	128	95	81	121	86	61
			Exposed	150	150	150	150	150	145	150	136	150	142	128	150	134	121	150	127	116	149	121	107	137	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60	
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	146	134	151	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	151	151	151	151	151	151	151	151	143	151	147	136	151	140	129	151	134	123	149	128	118	135	119	105	124	108	91	114	96	81	101	86	61	89	73	92	79	99	83
	D	0-7	Interior	149	149	149	149	149	143	149	149	136	149	147	129	149	140	123	149	134	118	149	129	113	138	119	99	129	111	88	121	99	76	114	90	97	104	83	88	95	68	81
			Exposed	149	140	123	149	133	117	147	126	110	140	121	101	134	116	94	128	110	87	123	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	55	94	67	47
		7-20	Interior	149	149	149	149	149	147	149	149	138	149	149	130	149	145	123	149	137	117	149	130	111	144	119	95	131	108	83	121	94	61	113	84	93	100	64	83	89	97	63
			Exposed	149	144	123	149	135	116	149	128	107	146	121	97	138	115	89	130	106	82	124	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	148	150	150	139	150	146	132	150	139	125	150	126	115	143	116	99	133	103	87	125	91	65	117	81	99	109	61	89
			Exposed	150	150	139	150	144	130	150	135	123	150	128	116	149	121	107	142	115	98	136	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	50
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	131	145	133	151	133	122	142	122	123	113	130	115	99	121	105	89	113	95	79	100	86	61
			Exposed	151	151	146	151	149	138	151	142	130	151	135	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	136	139	139	126	139	134	118	139	126	109	138	119	98	130	113	90
			Exposed	139	139	139	139	139	139	139	139	137	139	139	137	139	139	131	139	139	125	139	136	120	139	126	110	137	118	97	128	109	87	120	99	75	114	90	97	104	83	89
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	138	140	140	126	140	137	117	140	127	106	140	119	94	133	110	84
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	132	140	140	126	140	140	120	140	128	107	140	128	107	130	106	81	121	94	61	113	84	93	101	64	84
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	132	146	135	122	146	126	114	145	118	102			
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	142	146	146	135	146	136	123	146	124	113	142	115	97	132	102	86	125	91	65	118	82	100
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	139	150	141	130	150	132	122	144	125	115
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	142	150	130	131	121	141	122	111	130	115	99	121	105	89	114	95	80		
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	135	139	139	129	139	139	123	139	130	114	139	121	101	131	114	91	123	103	82	117	94	64	109	86	93
			Exposed	139	139	134	139	139	127	139	137	121	139	131	115	139	125	108	139	120	100	134	116	94	124	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	140	123	140	132	113	140	121	97	134	112	85	125	98	64	117	88	97	106	77	88
			Exposed	140	140	136	140	140	128	140	140	121	140	133	114	140	126	105	140	120	96	138	115	89	125	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	50
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	140	126	146	139	103	136	108	90	128	95	81	121	86	61
			Exposed	146	146	146	146	146	145	146	146	136	146	142	128	146	134	121	146	127	116	146	121	107	137	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	146	134	150	135	124	145	126	115	134	118	104	125	110	93	117	99	84
			Exposed	150	150	150	150	150	143	150	147	136	150	140	129	150	134	123	149	128	118	135	119	105	124	108	91	114	96	81	101	86	61	89	73	92	79	99	83			
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	129	139	139	123	139	134	118	139	129	113	138	119	99	129	111	88	121	99	76	114	90	97	104	83	88	95	68	81		
			Exposed	139	139	123	139	133	117	139	126	110	139	121	101	134	116	94	128	110	87	123	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	55	94	67	47
		7-20	Interior	140	140	140	140	140	140	140	140	138	140	140	130	140	140	130	140	140	123	140	137	117	140	130	111	140	119	95	131	108	83	121	94	61	113	84	93	100	64	83
			Exposed	140	140	140	140	140	135	116	140	128	107	140	121	97	138	115	89	130	106	82	124	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	139	147	146	132	147	139	125	147	126	115	143	116	99	133	103	87	125	91	65	117	81	99	109	61	89
			Exposed	147	147	139	147	144	130	147	135	123	147	128	116	147	121	107	142	115	98	136	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	50
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	151	139	151	145	133	151	133	122	142	123	113	130	115	99	121	105	89	113	95	79	100	86	61
			Exposed	151	151	146	151	149	138	151	142	130	151	135	124	149	128	118	141	123	112	134	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	118	126	126	109	126	119	98	126	113	90
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	120	126	126	110	126	118	97	126	109	87	120	99	75	114	90	97	104	83	89
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	117	127	127	106	127	119	94	127	110	84						
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	120	127	127	107	127	118	92	127	106	81	121	94	61	113	84	93	101	64	84
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	120	135	135	117	135	135	122	135	126	114	135	118	102						
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	120	135	135	117	135	124	113	135	115	97	132	102	86	125	91	65	118	82	100
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	120	140	140	117	140	131	121	140	122	111	130	115	99	121	105	89	114	95	80
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	120	140	140	117	140	131	121	140	122	111	130	115	99	121	105	89	114	95	80
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	114	126	126	114	126	126	91	123	103	82	117	94	64	109	86	93
			Exposed	126	126	126	126	126	126	126	126	121	126	126	115	126	125	108	126	120	100	126	116	94	124	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	113	127	127	113	127	127	97	127	112	85	125	98	64	117	88	97
			Exposed	127	127	127	127	127	127	127	127	121	127	127	114	127	126	105	127	120	96	127	115	89	125	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	50
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	120	135	135	113	135	135	119	135	135	103	135	108	90	128	95	81	121	86	61
			Exposed	135	135	135	135	135	135	135	135	135	135	135	128	135	134	121	135	127	116	135	121	107	135	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	120	140	140	113	140	135	124	140	126	115	134	118	104	125	110	93	117	99	84
			Exposed	140	140	140	140	140	140	140	140	140	140	140	136	140	140	129	140	134	123	140	128	118	135	119	105	124	108	91	114	96	81	101	86	61	89	73	92	79	99	83
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	118	126	126	113	126	119	99	126	111	88	121	99	76	114	90	97	104	83	88	95	68	81
			Exposed	126	126	123	126	126	117	126	126	110	126	121	101	126	126	94	126	110	87	123	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	55	94	67	47
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	117	127	127	111	127	119	95	127	108	83	121	94	61	113	84	93	100	64	83	89	97	63
			Exposed	127	127	123	127	127	116	127	127	107	127	121	97	127	115	89	127	106	82	124	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	132	137	137	125	137	126	115	137	116	99	133	103	87	125	91	65	117	81	99	109	61	89
			Exposed	137	137	137	137	137	130	137	135	123	137	128	116	137	121	107	137	115	98	136	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	50
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	139	142	142	133	142	133	122	141	123	113	130	115	99	121	105	89	113	95	79	100	86	61
			Exposed	142	142	142	142	142	138	142	142	130	142	135	124	142	128	118	141	123	112	134	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60

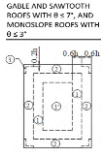
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

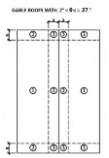
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

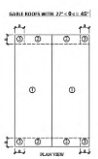
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

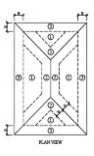












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

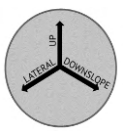
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

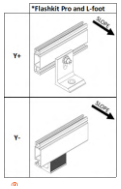
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	98	117	113	90
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	87	117	99	75	114	90	97	104	83	89
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	106	118	118	94	118	110	84
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	81	118	94	61	113	84	93	101	64	84
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	126	114	127	118	102
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	124	113	127	115	97	127	102	86	125	91	65	118	82	100
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	111	122*	115	99	122*	105	89	114	95	80
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	114	117	117	101	117	114	91	117	103	82	117	94	64	109	86	93
			Exposed	117	117	117	117	117	117	117	117	117	115	117	117	108	117	117	100	117	116	94	117	104	83	116	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	113	118	118	97	118	112	85	118	98	64	117	88	97	106	77	88
			Exposed	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	96	118	115	89	118	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	50
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	116	127	119	103	127	108	90	127	95	81	121	86	61
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	121	127	127	116	127	121	107	127	109	91	127	94	75	118	82	101	110	61	89	99	94	80	90	85	60
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	115	122*	118	104	122*	110	93	117	99	84
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	118	122*	119	105	122*	108	91	114	96	81	101	86	61	89	73	92	79	99	83
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	113	117	117	99	117	111	88	117	99	76	114	90	97	104	83	88	95	68	81
			Exposed	117	117	117	117	117	117	117	117	110	117	117	101	117	116	94	117	110	87	117	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	95	118	118	83	118	94	61	113	84	93	100	64	83	89	97	63
			Exposed	118	118	118	118	118	116	118	118	107	118	118	97	118	115	89	118	106	82	118	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	125	129	126	115	129	116	99	129	103	87	125	91	65	117	81	99	109	61	89
			Exposed	129	129	129	129	129	129	129	129	123	129	128	116	129	121	107	129	115	98	129	107	90	125	92	65	116	78	98	105	101	86	95	90	64	86	80	57	74	61	50
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	123	113	127	115	99	121	105	89	113	95	79	100	86	61
			Exposed	127	127	127	127	127	127	127	127	127	124	127	127	118	127	123	112	127	118	103	122	106	89	111	93	73	96	83	98	85	64	88	63	94	76	99	85	60
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	109	115	115	98	115	113	90
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	97	115	109	87	115	99	75	114	90	97	104	83	88
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	106	115	115	94	115	110	84
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	92	115	106	81	115	94	61	113	84	93	101	64	84
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	102*
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	102*	113*	91	65	113*	82	100
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	105*	89	109*	96*	80
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	101	115	114	91	115	103	82	115	94	64	109	86	93
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	108	115	115	100	115	115	94	115	104	83	115	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	113	115	115	97	115	112	85	115	98	64	115	88	97	106	77	88
			Exposed	115	115	115	115	115	115	115	115	115	114	115	115	105	115	115	96	115	115	89	115	99	65	115	87	96	102	65	85	90	97	64	80	87	56	61	73	50
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	103*	113*	108*	90	113*	95	81	113*	86	61
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	107*	113*	109*	91	113*	94	75	113*	82	101	110*	61	89	99	94	80	90	85	60
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	93	109*	100*	84
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	105*	109*	108*	91	109*	96*	81	101*	86	61	89	73	92	79	99	83
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	113	117	117	99	117	111	88	117	99	76	114	90	97	104	83	88	95	68	81
			Exposed	117	117	117	117	117	117	117	117	110	117	117	101	117	116	94	117	110	87	117	103	82	114	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	111	117	117	95	117	108	83	117	94	61	113	84	93	100	64	83	89	97	63
			Exposed	117	117	117	117	117	116	117	117	107	117	117	97	117	115	89	117	106	82	117	98	64	114	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107	118*	115*	98	118*	107	90	118*	107	92	65	116*	78	98	105	101	86	95	90	64	86	80	57	74	61	50
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	116*	118*	118*	107	118*	115*	98	118*	107	90	118*	107	92	65	116*	78	98	105	101	86	95	90	64	86	80	57	74	61	50
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104*	114*	114*	104*	114*	114*	99	114*	105*	89	113*	95	79	100	86	61	89	73	92	79	99	83
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	106*	89	111*	93	73	96	83	98	85	64	88	63	94	76	99	85	60
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	98	107	107	90
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	99	107	107	97	107	104	83	89
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	106*	112*	112*	94	112*	110*	84
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	94	112*	106*	81	112*	94	61	112*	84	93	101	64	84
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	97*	100*	100*	86*	100*	91*	65	100*	82	100
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	89*	94*	94*	80*
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	101	107	107	91	107	107	94	107	107	86	93
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	83	107	93	63	105	84	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	98	112*	112*	88	106*	77	88
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	105*	112*	112*	96	112*	112*	89	112*	99	65	112*	87	96	102*	65	85	90	97	64	80	87	56	61	73	50
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	91*	100*	94*	75	100*	82	101	100*	61	89	99*	94	80	90*	85	60
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	84*	94*	94*	84*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	91*	94*	94*	81*	94*	86*	61	89*	73	92	80*	99	83	94*	94*	80*
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	99	111	111	88	111	99	76	111	90	97	104	83	88	95	68	81
			Exposed	111	111	111	111	111	111	111	110	111	101	111	111	94	111	110	87	111	103	82	111	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	111	115*	115*	95	115*	108	83	115*	94	61	113*	84	93	100	64	83	89	97	63
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	107	115*	115*	97	115*	115*	89	115*	106	82	115*	98	64	114*	85	94	98	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	99*	107*	103*	87	107*	91	65	107*	81	99	107*	61	89
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	92*	65	107*	78	98	105*	101	86	95*	90	64	86	80	57	74	61	50
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	99*	103*	103*	89*	103*	95*	79	100*	86	61
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	90*	103*	93*	73	96*	83	98	85	64	88	63	94	76	99	85	60

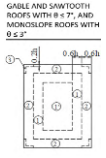
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

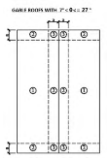
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

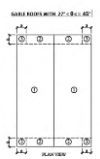
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

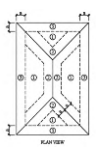












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

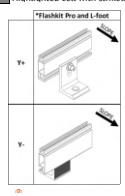
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	90
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	87	98	98	75	98	90	97	98	83	89
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94*	102*	102*	84
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	92*	102*	102*	81	102*	94*	61	102*	84	93	101*	64	84
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	65	85*	82*	100
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	91	98	98	82	98	94	64	98	86	93
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	94	98	98	84	98	90	96	69	81	87	93	63	80	86	56
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	97*	102*	102*	85	102*	98*	64	102*	88*	97	102*	77	88
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	99*	65	102*	87*	96	102*	65	85	102*	97	64	80	87	56	61	73	50
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	81*	85*	85*	61
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	75*	85*	82*	101	85*	85*	61	89	85*	94	80	85*	85	60
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	88	103	99	76	103	90	97	103	83	88	95	68	81
			Exposed	103	103	103	103	103	103	103	103	103	103	103	101	103	103	94	103	103	87	103	103	82	103	91	98	103	82	87	92	64	74	84	90	69	70	82	59	94	67	47
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	95*	109*	108*	83	109*	94	61	108*	84	93	100*	64	83	89	97	63
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	97*	109*	109*	89	109*	106*	82	109*	98*	64	109*	85	94	98*	62	82	86	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	87*	93*	91*	65	93*	81*	99	93*	61	89
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	90*	93*	92*	65	93*	78	98	93*	101	86	93*	90	64	86*	80	57	74	61	50
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	79*	88*	86*	61
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	74*	88*	83*	98	85*	64	88	63	94	76	99	85	60
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	83	91	91	63	91	84	90	91	69	81	87	93	63	80	86	56
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	84*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	81*	89*	89*	61	89*	84*	93	89*	64	84
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	65*	73*	73*	100*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	82	91	91	64	91	86	93
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	83	91	91	63	91	84	90	91	69	81	87	93	63	80	86	56
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	88
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	65	89*	87*	96	89*	65	85	89*	97	64	80*	87	56	61	73	50
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	61
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	101*	73*	61	89	73*	94*	80	73*	85	60
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	92*	70*	99*	83
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	97	96	83	88	95	68	81
			Exposed	96	96	96	96	96	96	96	96	96	96	96	94	96	96	87	96	96	82	96	91	98	96	82	87	92	64	74	84	90	66	70	82	59	94	67	47	89	57	47
		7-20	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	95*	98*	98*	83*	98*	94*	61	98*	84*	93	98*	64	83	89*	97	63
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	97*	98*	98*	89	98*	98*	82	98*	98*	64	98*	85*	94	98*	62	82	86*	93	61	65	83	59	98	63	47	88	56	49
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	65	81*	78*	99	81*	61	89
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	65	81*	78*	98	81*	101	86	81*	90	64	81*	80	57	74*	61	50
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	61
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	99*	77*	64	88	63	94	76	99*	85	60
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	75	86	86	97	86	83	89
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	84
		20-27	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
		27-45	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	64	86	86	93
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	63	86	84	90	86	69	81	86	93	63	80	86	56
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	88
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	65	78*	78*	96	78*	65	85	78*	97	64	78*	87	56	61	73	50
		20-27	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	89*	97*	94*	80	97*	85*	60
		27-45	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	84*
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	76	90	90	97	90	83	88	90	68	81	95	68	81
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	82	87	90	90	98	90	82	87	90	64	74	84	90	66	70	82	59	94	67	47	89	57	47
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	83*	86*	86*	61	86*	84*	93	86*	64	83	86*	97	63
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	64	86*	85*	94	86*	93	61	65	83	59	98	63	47	88	56	42
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	65*	72*	72*	99*	72*	61*	89
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	65*	72*	72*	98*	72*	101*	86	72*	90	64	72*	80	57	72*	61	50
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	61*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	98*	68*	64*	88*	63*	94*	76	99*	86*	60

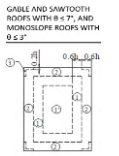
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

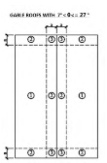
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

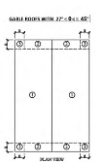
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

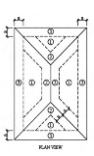












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

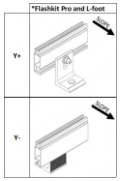
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

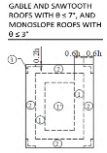
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

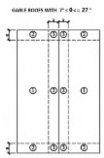
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

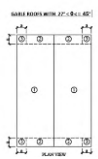
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

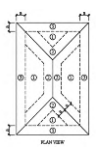












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

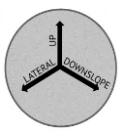
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

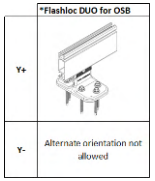
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	34	34	34	31	34	34	28	34	34	25	34	32	22	34	29	20	34	26	18	31	22	15	26	19	13	23	16	11	20	14	10	17	12	9	15	11	8
			Exposed	34	32	22	34	28	20	34	25	18	32	23	16	29	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	8
		7-20	Interior	34	34	30	34	34	27	34	33	24	34	30	22	34	27	19	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	10	8	13	9	7
			Exposed	34	27	19	33	24	17	29	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	7	8	6	7
		20-27	Interior	34	34	34	34	34	33	34	34	29	34	32	26	34	29	24	34	26	21	34	24	20	34	20	16	30	17	14	26	15	12	22	13	10	19	11	9	17	10	8
			Exposed	34	29	24	34	26	21	34	23	19	34	21	17	33	19	15	30	17	14	27	15	13	23	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	31	35	35	28	35	33	26	34	30	24	28	25	20	24	21	17	21	18	15	18	16	13	16	14	11	14	12	10
			Exposed	35	35	28	35	32	25	32	29	22	29	26	20	26	23	18	24	21	17	22	19	15	18	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6
	C	0-7	Interior	34	34	23	34	30	21	34	27	19	34	24	17	30	22	15	28	20	14	25	18	13	21	15	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	8
			Exposed	30	22	15	27	19	13	24	17	12	21	15	11	19	14	10	18	13	9	16	12	8	13	10	7	11	8	6	10	7	8	9	6	7	7	5	6	7	7	5
		7-20	Interior	34	28	21	34	25	18	31	22	16	28	20	15	25	18	13	23	16	12	21	15	11	17	13	9	15	11	8	13	9	7	11	8	6	10	7	8	9	6	7
			Exposed	25	18	13	22	16	12	20	14	10	18	13	9	16	12	9	15	11	8	13	10	7	11	8	6	9	7	8	8	6	6	7	8	6	6	7	5	6	6	4
		20-27	Interior	34	31	25	34	27	22	34	24	20	34	22	18	34	20	16	31	18	15	28	16	13	24	14	11	20	12	10	17	10	8	15	9	7	13	8	6	12	7	6
			Exposed	34	20	16	31	17	14	27	16	13	24	14	11	22	13	10	20	11	9	18	10	9	15	9	7	13	7	6	11	6	5	10	6	7	9	8	6	8	7	5
		27-45	Interior	35	35	30	35	34	27	34	30	24	31	27	21	28	25	19	25	22	18	23	20	16	19	17	14	16	15	12	14	13	10	12	11	9	11	10	8	10	9	7
			Exposed	28	25	19	24	22	17	22	20	15	20	18	14	18	16	13	16	14	11	15	13	10	12	11	9	11	9	7	9	8	6	8	7	6	7	6	8	6	5	7
	D	0-7	Interior	34	28	19	34	25	17	31	22	15	28	20	14	25	18	12	23	16	11	21	15	10	17	12	9	15	11	7	13	9	6	11	8	5	10	7	7	9	6	7
			Exposed	25	18	12	22	16	11	20	14	10	18	13	9	16	12	8	15	10	7	13	10	7	11	8	6	9	7	7	8	6	6	7	8	5	6	7	5	5	6	4
		7-20	Interior	33	23	17	29	21	15	26	18	13	23	17	12	21	15	11	19	14	10	17	12	9	14	10	8	12	9	6	11	8	6	9	7	7	8	6	7	7	8	6
			Exposed	21	15	11	18	13	10	16	12	9	15	11	8	13	10	7	12	9	6	11	8	6	9	7	8	8	6	6	7	8	6	6	7	5	8	6	4	7	5	4
		20-27	Interior	34	25	21	34	22	18	34	20	16	32	18	15	28	16	13	26	15	12	23	13	11	20	11	9	17	10	8	14	8	7	13	7	6	11	6	8	10	6	7
			Exposed	28	16	13	25	14	12	22	13	11	20	12	9	18	10	9	17	10	8	15	9	7	13	7	6	11	6	8	9	5	7	8	7	6	7	6	5	6	6	4
		27-45	Interior	35	32	25	32	28	22	32	25	20	25	23	18	23	20	16	21	19	15	19	17	13	16	14	11	14	12	10	12	10	8	10	9	7	9	8	6	8	7	5
			Exposed	23	20	16	20	18	14	18	16	13	16	15	11	15	13	10	13	12	9	12	11	9	10	9	7	9	8	6	8	7	5	7	6	7	6	8	6	8	7	5
10	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	27	18	27	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	10	8
			Exposed	27	27	22	27	27	20	27	25	18	27	23	16	27	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	8
		7-20	Interior	28	28	28	28	28	27	28	28	24	28	28	22	28	27	19	28	24	18	28	22	16	26	19	14	22	16	12	19	14	10	16	12	9	14	10	8	13	9	7
			Exposed	28	27	19	28	24	17	28	21	15	26	19	14	24	17	13	22	16	11	20	14	10	16	12	9	14	10	7	12	9	6	10	8	6	9	7	7	8	6	7
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		27-45	Interior	29	29	25	29	28	22	28	25	20	25	23	18	23	20	16	21	19	15	19	17	13	16	14	11	14	12	10	12	10	8	10	9	7	9	8	6	8	7	6
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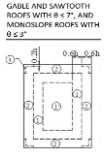
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

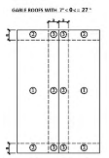
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

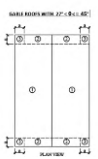
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

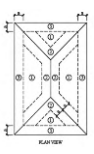












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

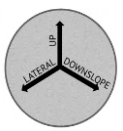
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

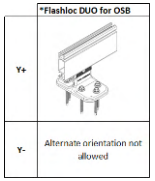
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	20	20	20	20	20	20	20	20	19	20	20	17	20	19	15	20	17	14	20	15	13	20	13	11	19	11	9	16	9	8	14	8	7	13	7	6	11	6	8
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	21	17	21	18	15	18	16	13	16	14	11	14	12	10
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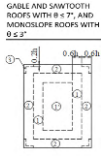
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

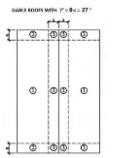
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

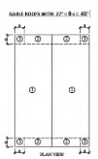
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

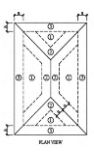












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

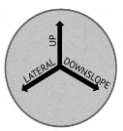
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

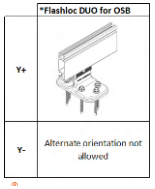
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3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

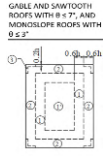
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

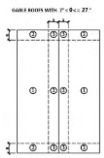
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

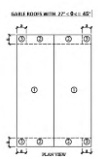
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

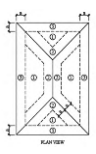












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

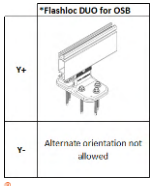
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

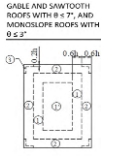
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

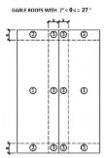
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

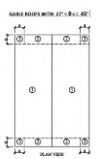
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

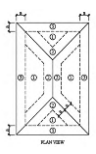












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

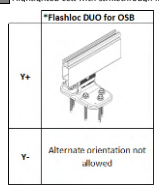
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

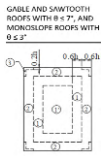
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

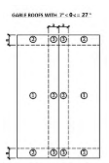
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

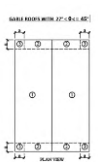
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

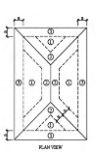












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

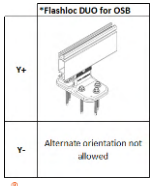
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

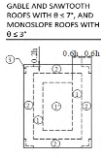
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

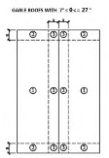
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

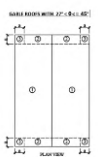
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

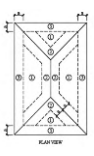












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

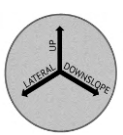
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

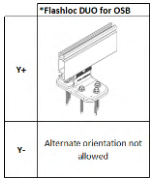
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

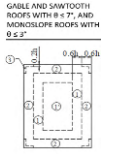
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

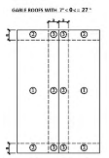
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

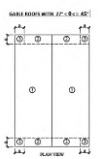
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

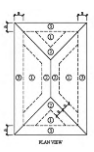












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

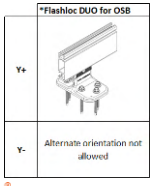
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	13		
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
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		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14
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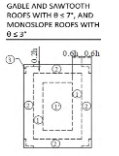
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

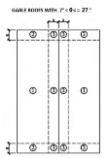
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

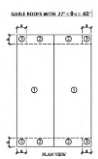
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

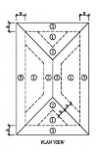












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

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

SPAN TABLES

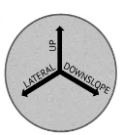
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

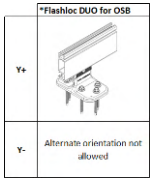
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

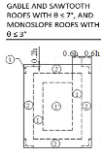
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

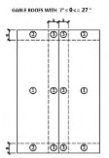
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

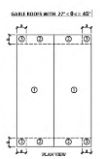
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

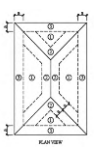












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

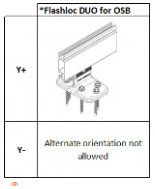
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

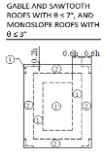
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

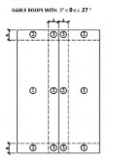
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

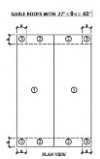
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

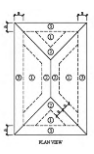












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

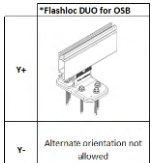
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

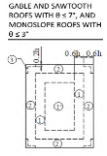
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

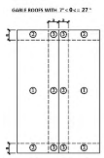
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

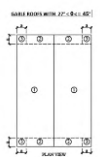
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

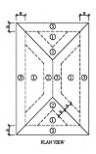












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

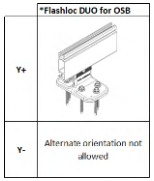
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

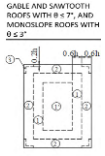
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

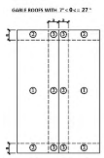
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

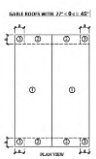
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

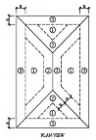












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

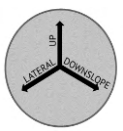
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

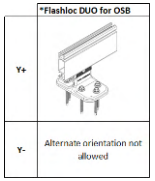
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

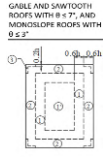
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

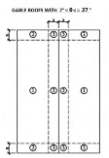
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

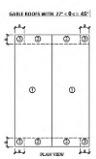
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

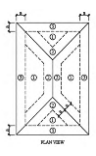












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

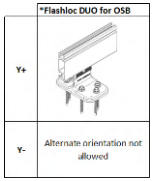
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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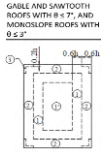
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

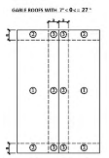
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

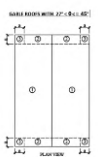
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

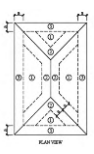












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

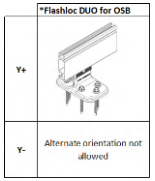
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	24	24	24	21	23	23	18	22	21	16
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	16	11	18	14	10	17	12	13
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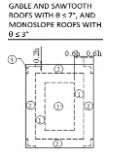
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

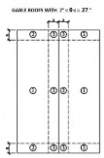
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

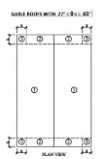
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

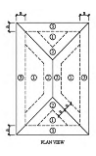












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

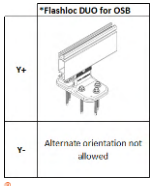
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	27	27	27	27	27	27	26	26	25
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		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	13	12	10	12
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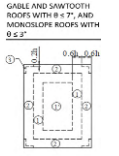
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

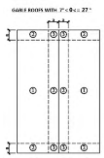
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

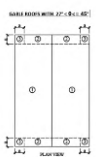
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

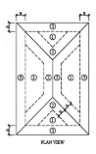












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

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

SPAN TABLES

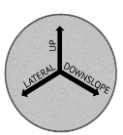
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

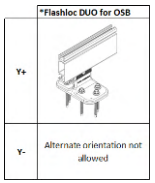
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	31	35	35	28	35	33	26	34	30	24	28	25	20	24	21	17	21	18	15	18	16	13	16	14	11	14	12	10
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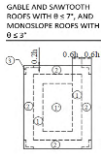
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

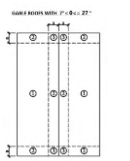
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

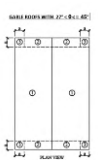
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

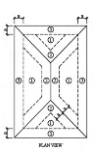












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

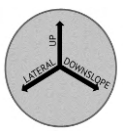
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

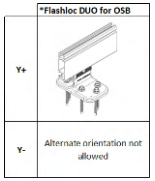
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	21	17	21	18	15	18	16	13	16	14	11	14	12	10
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		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	13	9	15	11	8	13	9	7	11	8	6	10	7	8	9	6	7
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		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	12	9	14	10	8	12	9	6	11	8	6	9	7	7	8	6	7	7	8	6
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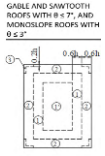
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

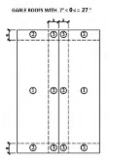
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

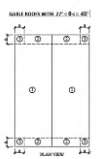
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

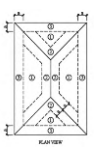












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

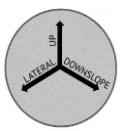
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

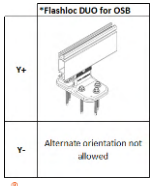
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

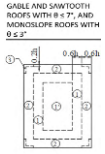
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

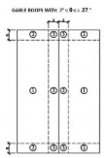
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

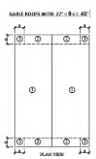
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

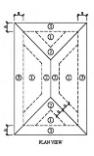












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

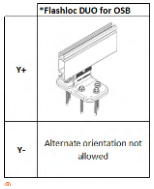
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

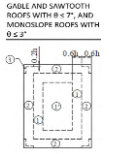
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

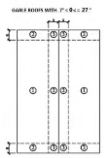
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

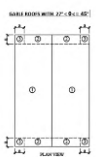
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

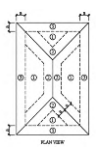












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

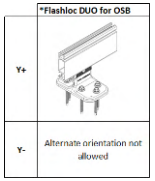
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

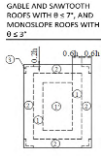
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

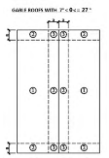
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

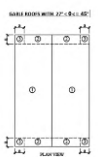
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

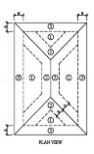












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

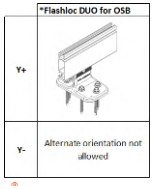
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	27	19	27	24	17	27	21	15	26	19	13
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		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	27	20	27	23	17	27	20	15	24	18	13	21	16	11
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		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	28	34	29	24	34	25	21	34	22	18	33	19	16	29	17	14
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		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	33	38	36	29	35	31	25	31	27	22	27	24	19	24	21	17
			Exposed	39	39	39	39	39	39	39	39	38	39	39	34	39	39	31	39	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	17	16	12	15	14	11
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	18	27	22	15	26	19	13	23	16	11	20	14	10	18	13	14
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		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	27	21	27	25	19	27	21	16	25	18	13	22	16	12	19	14	10	17	12	14	15	11	12
			Exposed	27	27	22	27	27	20	27	24	18	27	22	16	27	20	15	25	18	13	23	17	12	19	14	10	16	12	13	14	10	12	12	14	10	11	12	9	10	11	8
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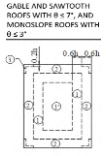
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

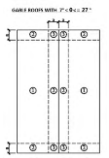
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

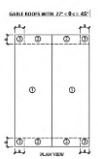
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

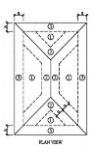












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

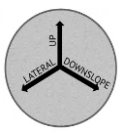
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

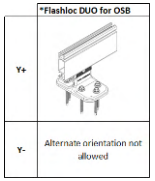
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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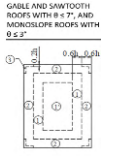
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

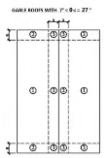
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

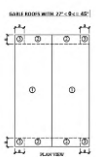
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

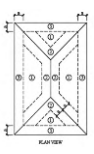












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

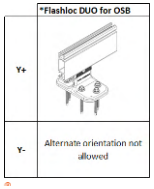
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

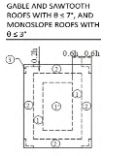
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

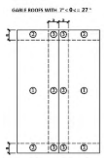
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

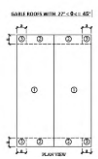
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

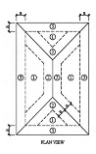












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

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

SPAN TABLES

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

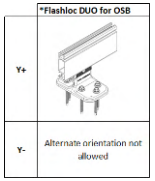
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	28	28	28	28	28	26	28	28	23	28	28	21	28	27	19	28	24	17	28	22	15	26	18	13	22	16	11	19	13	9	16	12	8	14	10	7	13	9	6
			Exposed	28	27	18	28	24	16	28	21	15	27	19	13	24	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	7	8	6	6
		7-20	Interior	28	28	25	28	28	22	28	28	20	28	25	18	28	22	16	28	20	15	26	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6	10	8	5
			Exposed	28	22	16	28	20	14	25	18	13	22	16	12	20	14	10	18	13	9	16	12	9	14	10	7	12	8	6	10	7	5	9	6	7	8	5	6	7	7	5
		20-27	Interior	29	29	29	29	29	27	29	29	24	29	27	22	29	24	20	29	22	18	29	20	16	29	17	14	25	14	12	21	12	10	19	11	9	16	9	8	14	8	7
			Exposed	29	24	20	29	21	17	29	19	16	29	17	14	27	15	13	25	14	11	22	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	8	9	5	7
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	29	27	21	28	25	20	24	21	16	20	18	14	17	15	12	15	13	11	13	12	9	12	10	8
			Exposed	29	29	24	29	27	21	27	24	19	24	21	17	22	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5
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			Exposed	25	18	13	22	16	11	20	14	10	18	13	9	16	12	8	15	10	7	13	10	7	11	8	6	9	7	7	8	6	6	7	8	5	6	7	5	6	4	4
		7-20	Interior	28	24	17	28	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	12	9	15	10	8	12	9	6	11	8	6	9	7	7	8	6	7	7	5	6
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			Exposed	29	16	13	25	14	12	23	13	11	20	12	10	18	11	9	17	10	8	15	9	7	13	7	6	11	6	8	9	5	7	8	5	4	7	5	4	6	4	4
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		7-20	Interior	23	23	23	23	23	22	23	23	20	23	23	18	23	22	16	23	20	15	23	18	13	21	15	11	18	13	10	16	11	8	14	10	7	12	9	6	10	8	5
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		20-27	Interior	26	26	26	26	26	26	26	26	24	26	26	22	26	24	20	26	22	18	26	20	16	26	17	14	25	14	12	21	12	10	19	11	9	16	9	8	14	8	7
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		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	27	21	28	25	20	24	21	16	20	18	14	17	15	12	15	13	11	13	12	9	12	10	8
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		20-27	Interior	26	26	21	26	23	18	26	20	17	26	18	15	26	16	13	26	15	12	24	14	11	20	11	9	17	10	8	15	8	7	13	7	6	11	6	5	10	6	7
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		20-27	Interior	27	21	17	27	19	15	27	17	14	26	15	12	24	14	11	22	12	10	20	11	9	16	9	8	14	8	7	12	7	6	10	6	8	9	5	7	8	7	6
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		27-45	Interior	29	26	21	26	23	18	26	20	16	26	19	15	26	17	13	26	17	12	24	14	11	20	11	9	16	9	8	12	7	6	10	6	8	9	7	6	8	7	6
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20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	13	9	16	12	8	14	10	7	13	9	6
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	13	17	15	11	17	13	10	16	11	8	14	10	7	12	9	6	10	8	5
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		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	20	16	21	17	14	21	14	12	21	12	10	19	11	9	16	9	8	14	8	7
			Exposed	21	21	20	21	21	17	21	19	16	21	17	14	21	15	13	21	14	11	21	13	10	19	11	9	16	9	7	14	8	6	12	7	6	10	6	8	9	5	7
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		7-20	Interior	17	17	17	17	17	15	17	17	14	17	17	12	17	15	11	17	14	10	17	12	9	15	10	8	12	9	6	11	8	6	9	7	7	8	6	6	7	5	6
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		7-20	Interior	17	17	14	17	17	13	17	15	11	17	14	10	17	12	9	16	11	8	14	10	8	12	9	6	10	7	5	9	6	7	8	5	6	7	7	5	6	7	5
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		27-45	Interior	24	24	21	24	23	18	23	21	16	21	19	15	19	17	13	17	15	12	16	14	11	13	12	9	11	10	8	10	9	7	8	8	6	7	7	5	7	6	7
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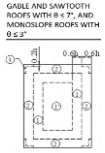
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

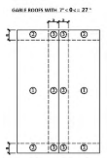
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

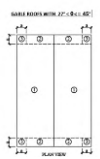
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

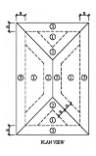












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

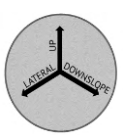
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

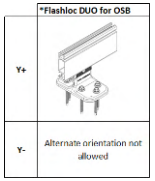
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

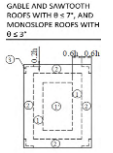
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

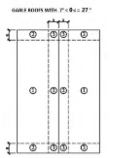
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

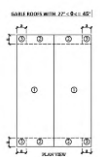
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

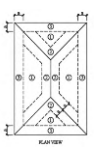












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

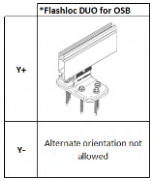
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

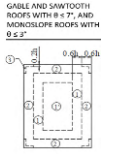
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

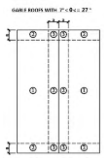
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

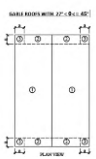
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

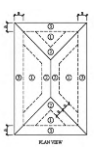












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

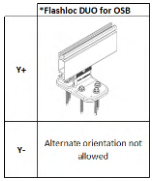
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

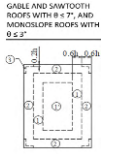
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

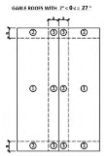
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

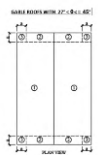
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

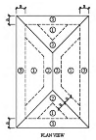












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

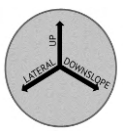
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

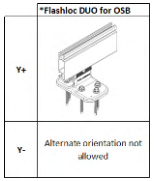
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	55	55	55	55	55	51	55	55	46	55	55	41	55	53	37	55	48	33	55	44	30	51	37	26	44	31	22	37	27	19	32	23	16	28	21	14	25	18	13
			Exposed	55	53	37	55	47	33	55	42	29	53	38	26	48	34	24	43	31	22	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
		7-20	Interior	55	55	50	55	55	45	55	55	40	55	49	36	55	44	32	55	40	29	51	37	27	43	31	22	36	26	19	31	23	17	27	20	14	24	17	13	21	15	11
			Exposed	55	44	32	55	39	29	49	35	26	44	31	23	39	28	21	36	26	19	33	24	17	27	20	15	23	17	12	20	15	11	18	13	9	15	11	13	14	10	11
		20-27	Interior	56	56	56	56	56	54	56	56	48	56	53	43	56	48	39	56	43	36	56	40	32	56	33	27	50	28	23	43	24	20	37	21	17	32	19	15	29	17	14
			Exposed	56	48	39	56	42	35	56	38	31	56	34	28	54	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	13
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	52	57	57	47	57	54	43	56	50	39	47	42	33	40	35	28	34	31	24	30	27	21	26	23	18	23	21	16
			Exposed	57	57	47	57	53	42	53	47	37	48	43	34	43	39	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
	C	0-7	Interior	55	55	39	55	50	35	55	44	31	55	40	28	50	36	25	46	33	23	41	30	21	35	25	18	30	21	15	25	18	13	22	16	11	19	14	10	17	12	13
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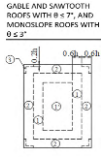
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

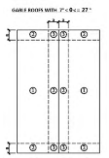
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

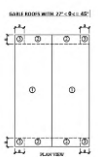
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

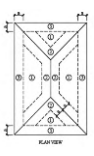












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

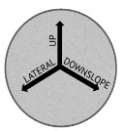
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

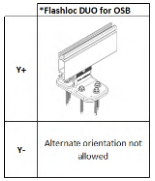
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	33	33	33	33	33	33	33	33	31	33	33	28	33	31	25	33	28	23	33	25	21	33	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	13
		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	33	37	35	28	34	31	24	30	27	21	26	23	18	23	21	16
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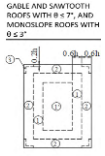
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

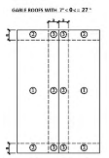
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

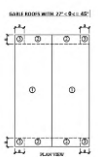
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

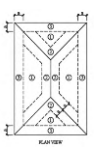












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

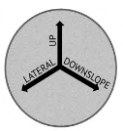
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

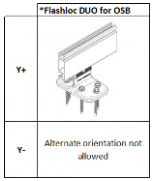
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	19	15	21	17	14			
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		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	24	24	24	21	23	23	18	22	21	16
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		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	13	10	14	12	13			
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		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	25	21	28	28	24	28	22	18	27	19	16	26	17	14
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		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	13	9	15	11	13	14	10	11	12	13	10
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		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	16	13	18	14	11	17	12	10	17	11	13	16	9	12
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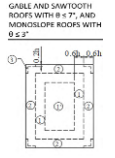
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

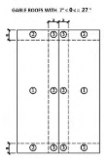
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

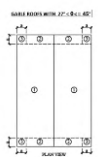
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

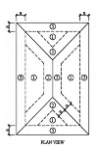












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

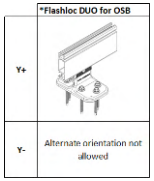
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

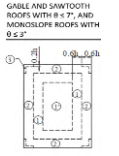
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

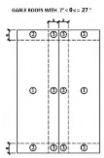
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

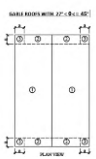
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

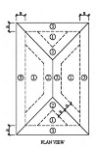












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

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

SPAN TABLES

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

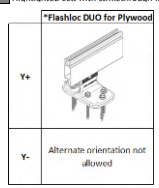
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	43	47	47	38	47	47	34	47	45	30	47	40	27	47	36	25	47	33	23	38	27	19	32	23	16	28	20	14	24	17	12	21	15	11	19	13	9
			Exposed	47	40	27	47	35	24	45	31	22	39	28	20	35	25	18	32	23	16	29	21	15	24	18	12	21	15	10	18	13	9	16	11	8	14	10	7	12	9	9
		7-20	Interior	47	47	37	47	47	33	47	41	30	47	37	27	47	33	24	42	30	22	38	27	20	32	23	17	27	19	14	23	17	12	20	15	11	18	13	9	16	11	8
			Exposed	47	33	24	41	29	21	36	26	19	33	23	17	29	21	16	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	9	10	7	8
		20-27	Interior	47	47	47	47	47	40	47	46	36	47	40	32	47	36	29	47	32	27	47	30	24	44	25	20	37	21	17	32	18	15	27	16	13	24	14	11	21	12	10
			Exposed	47	36	29	47	32	26	47	28	23	46	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	10
		27-45	Interior	48	48	48	48	48	48	48	48	44	48	48	39	48	46	35	48	41	32	42	37	29	35	31	24	30	26	21	26	23	18	22	20	16	20	17	14	17	15	12
			Exposed	48	46	35	46	40	31	40	35	28	36	32	25	32	29	23	29	26	21	27	24	19	22	20	16	19	17	14	17	15	12	14	13	10	13	11	9	11	10	8
	C	0-7	Interior	47	42	29	47	37	26	47	33	23	42	30	21	38	27	19	34	24	17	31	22	15	26	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	10
			Exposed	37	27	19	33	24	17	30	21	15	27	19	13	24	17	12	22	16	11	20	14	10	17	12	8	14	10	7	12	9	9	11	8	8	9	7	7	8	9	6
		7-20	Interior	47	35	25	44	31	23	39	28	20	35	25	18	31	22	16	28	20	15	26	19	14	22	16	11	18	13	10	16	11	8	14	10	7	12	9	10	11	8	9
			Exposed	31	22	16	28	20	15	25	18	13	22	16	12	20	14	11	18	13	10	17	12	9	14	10	7	12	9	10	10	7	8	9	6	7	8	6	6	7	8	6
		20-27	Interior	47	38	31	47	33	27	47	30	25	47	27	22	43	24	20	39	22	18	35	20	17	29	17	14	25	14	12	22	12	10	19	11	9	16	9	8	15	8	7
			Exposed	42	24	20	38	21	18	34	19	16	30	17	14	27	16	13	25	14	12	23	13	11	19	11	9	16	9	7	13	8	6	12	7	6	9	6	5	8	7	6
		27-45	Interior	48	48	37	48	42	33	42	37	29	38	34	26	34	30	24	31	28	22	28	25	20	24	21	17	20	18	14	18	16	12	15	14	11	13	12	9	12	11	8
			Exposed	34	30	24	30	27	21	27	24	19	24	22	17	22	20	16	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	6
	D	0-7	Interior	47	34	24	43	31	21	38	27	19	34	25	17	31	22	15	28	20	14	25	18	13	21	15	11	18	13	9	16	11	8	14	10	7	12	9	9	11	8	8
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		7-20	Interior	40	29	21	36	26	19	32	23	17	28	21	15	26	19	14	23	17	12	21	15	11	18	13	9	15	11	8	13	9	7	11	8	9	10	7	8	9	10	7
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		27-45	Interior	45	39	31	39	35	27	35	31	24	31	28	22	28	25	20	26	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7
			Exposed	28	25	20	25	22	18	22	20	16	20	18	14	18	16	13	17	15	12	15	14	11	13	11	9	11	10	8	9	8	7	8	7	9	7	10	8	10	9	7
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		7-20	Interior	38	38	37	38	38	33	38	38	30	38	37	27	38	33	24	38	30	22	38	27	20	32	23	17	27	19	14	23	17	12	20	15	11	18	13	9	16	11	8
			Exposed	38	33	24	38	29	21	36	26	19	33	23	17	29	21	16	27	19	14	24	18	13	20	15	11	17	13	9	15	11	8	13	9	7	11	8	9	10	7	8
		20-27	Interior	43	43	43	43	43	40	43	43	36	43	40	32	43	36	29	43	32	27	43	30	24	43	25	20	37	21	17	32	18	15	27	16	13	24	14	11	21	12	10
			Exposed	43	36	29	43	32	26	43	28	23	43	25	21	40	23	19	36	21	17	33	19	16	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7	14	8	10
		27-45	Interior	47	47	47	47	47	47	47	47	44	47	47	39	47	46	35	47	41	32	42	37	29	35	31	24	30	26	21	26	23	18	22	20	16	20	17	14	17	15	12
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	C	0-7	Interior	38	38	29	38	37	26	38	33	23	38	30	21	38	27	19	34	24	17	31	22	15	26	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	10
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		20-27	Interior	43	38	31	43	33	27	43	30	25	43	27	22	43	24	20	39	22	18	35	20	17	29	17	14	25	14	12	22	12	10	19	11	9	16	9	8	15	8	7
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		7-20	Interior	38	38	37	38	38	33	38	38	30	38	37	27	38	33	24	38	30	22	38	27	20	32	23	17	27	19	14	23	17	12	20	15	11	18	13	9	16	11	8
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		20-27	Interior	43	43	43	43	43	40	43	43	36	43	40	32	43	36	29	43	32	27	43	30	24	43	25	20	37	21	17	32	18	15	27	16	13	24	14	11	21	12	10
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	C	0-7	Interior	38	38	29	38	37	26	38	33	23	38	30	21	38	27	19	34	24	17	31	22	15	26	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	10
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		7-20	Interior	38	35	25	38	31	23	38	28	20	35	25	18	31	22	16	28	20	15	26	19	14	22	16	11	18	13	10	16	11	8	14	10	7	12	9	10	11	8	9
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		20-27	Interior	43	38	31	43	33	27	43	30	25	43	27	22	43	24	20	39	22	18	35	20	17	29	17	14	25	14	12	22	12	10	19	11	9	16	9	8	15	8	7
			Exposed	42	24	20	38	21	18	34	19	16	30	17	14	27	16	13	25	14	12	23	13	11	19	11	9	16	9	8	14	8	7	12	7	9	11	9	8	9	8	7
		27-45	Interior	47	47	37	47	47	33	47	42	37	29	38	34	26	34	30	24	31	28	22	28	25	20	24	21	17	20	18	14	18	16	12	15	14	11	13	12	9	12	11	8
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	D	0-7	Interior	38	38	38	38	38	38	38	38	34	38	38	30	38	38	27	38	36	25	38	33	23	38	27	19	32	23	16	28	20	14	24	17	12	21	15	11	19	13	9
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		7-20	Interior	38	38	37	38	38	33	38	38	30	38	37	27	38	33	24	38	30	22	38	27	20	32	23	17	27	19	14	23	17	12	20	15	11	18	13	9	16	11	8
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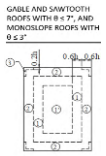
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

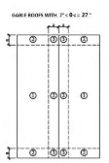
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

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









UNIRAC

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

SPAN TABLES

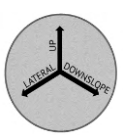
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

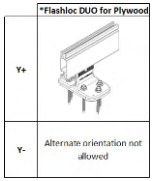
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	20	15	22	19	14	22	16	11	18	13	10	16	11	8	14	10	7	12	9	10	11	8	9
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		27-45	Interior	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	26	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7
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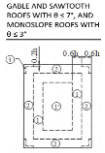
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

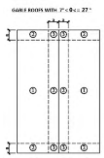
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

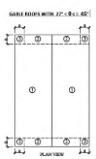
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

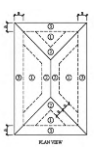












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

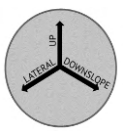
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

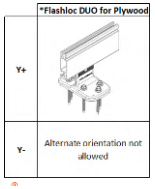
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

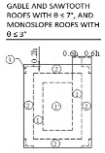
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

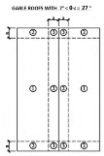
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

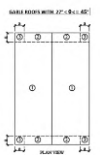
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

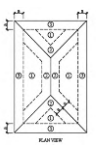












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

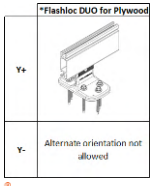
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

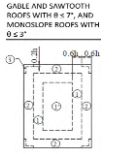
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

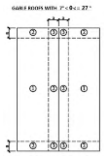
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

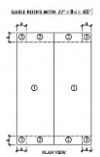
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

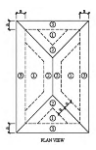












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

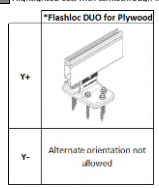
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	77	77	77	77	77	64	77	77	57	77	77	52	77	70	46	77	61	42	77	55	38	65	46	32	55	39	28	47	34	24	41	29	21	36	26	18	32	23	16
			Exposed	77	69	46	77	59	41	77	53	37	68	47	33	60	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	16
		7-20	Interior	77	77	63	77	77	56	77	77	50	77	62	45	77	56	41	77	51	37	64	46	34	54	39	28	46	33	24	39	28	21	34	25	18	30	22	16	27	19	14
			Exposed	77	56	41	77	49	36	61	44	32	55	40	29	50	36	26	45	33	24	41	30	22	35	25	18	29	21	16	25	18	14	22	16	12	19	14	16	17	13	14
		20-27	Interior	78	78	78	78	78	78	78	78	61	78	78	55	78	60	49	78	55	45	78	50	41	78	42	34	62	36	29	54	31	25	46	27	22	41	24	19	36	21	17
			Exposed	78	60	49	78	53	44	78	48	39	78	43	35	76	39	32	62	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	66	80	80	59	80	79	54	80	62	49	59	52	41	50	45	35	43	39	30	38	34	27	33	30	23	29	26	21
			Exposed	80	80	59	80	71	52	80	60	47	60	54	42	54	49	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
	C	0-7	Interior	77	77	49	77	63	44	77	56	39	77	50	35	64	45	32	57	41	29	52	38	26	44	32	22	37	27	19	32	23	16	28	20	14	25	18	13	22	16	17
			Exposed	63	45	32	56	40	28	50	36	25	45	32	23	41	29	21	37	27	19	34	24	17	28	20	14	24	17	12	21	15	16	18	13	14	16	12	12	14	16	11
		7-20	Interior	77	59	43	77	52	38	65	47	34	58	42	31	53	38	28	48	34	25	44	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15
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		20-27	Interior	78	64	52	78	57	46	78	51	41	78	45	37	78	41	34	66	37	31	59	34	28	50	29	24	42	24	20	36	21	17	32	18	15	28	16	13	25	14	12
			Exposed	78	41	34	64	36	30	57	33	27	51	29	24	46	27	22	42	24	20	38	22	18	32	19	15	27	16	13	24	14	11	21	12	15	18	16	13	16	14	12
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			Exposed	57	51	40	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	28	22	26	23	19	22	20	16	19	17	14	17	15	12	15	13	16	13	12	14
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		7-20	Interior	77	49	36	60	43	32	54	39	28	48	35	26	43	31	23	39	29	21	36	26	19	30	22	16	26	19	14	22	16	12	19	14	16	17	12	14	15	17	12
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		7-20	Interior	63	63	63	63	63	56	63	63	50	63	62	45	63	56	41	63	51	37	63	46	34	54	39	28	46	33	24	39	28	21	34	25	18	30	22	16	27	19	14
			Exposed	63	56	41	63	49	36	61	44	32	55	40	29	50	36	26	45	33	24	41	30	22	35	25	18	29	21	16	25	18	14	22	16	12	19	14	16	17	13	14
		20-27	Interior	72	72	72	72	72	72	72	72	61	72	72	55	72	60	49	72	55	45	72	50	41	72	42	34	62	36	29	54	31	25	46	27	22	41	24	19	36	21	17
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		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	66	77	77	59	77	77	54	77	62	49	59	52	41	50	45	35	43	39	30	38	34	27	33	30	23	29	26	21
			Exposed	77	77	59	77	71	52	77	60	47	60	54	42	54	49	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
	C	0-7	Interior	63	63	49	63	63	44	63	56	39	63	50	35	63	45	32	57	41	29	52	38	26	44	32	22	37	27	19	32	23	16	28	20	14	25	18	13	22	16	17
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		7-20	Interior	63	59	43	63	52	38	63	47	34	58	42	31	53	38	28	48	34	25	44	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15
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		20-27	Interior	74	53	43	74	47	38	74	42	34	67	38	31	59	34	28	54	31	25	49	28	23	41	24	20	35	20	17	30	18	14	26	15	13	23	13	11	21	12	15
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		27-45	Interior	79	67	52	68	58	46	59	52	41	53	47	37	48	43	34	43	39	31	40	35	28	33	30	24	29	26	20	25	22	17	22	19	15	19	17	13	17	15	12
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		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	47	46	34	47	39	28	46	33	24	39	28	21	34	25	18	30	22	16	27	19	14
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		20-27	Interior	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49	57	55	45	57	50	41	57	42	34	57	36	29	54	31	25	46	27	22	41	24	19	36	21	17
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		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	54	63	62	49	59	52	41	50	45	35	43	39	30	38	34	27	33	30	23	29	26	21
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		7-20	Interior	47	47	43	47	47	38	47	47	34	47	42	31	47	38	28	47	34	25	44	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15
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		20-27	Interior	57	57	52	57	57	46	57	51	41	57	45	37	57	41	34	57	37	31	57	34	28	50	29	24	42	24	20	36	21	17	32	18	15	28	16	13	25	14	12
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		27-45	Interior	63	63	62	63	63	55	63	63	50	63	57	45	58	51	40	52	47	37	48	43	34	40	36	28	34	31	24	30	27	21	26	23	18	23	20	16	20	18	14
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	D	0-7	Interior	47	47	41	47	47	36	47	46	32	47	41	29	47	37	26	47	34	24	43	31	22	36	26	18	31	22	16	27	19	14	23	17	12	20	15	16	18	13	14
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		7-20	Interior	47	47	36	47	43	32	47	39	28	47	35	26	43	31	23	39	29	21	36	26	19	30	22	16	26	19	14	22	16	12	19	14	16	17	12	14	15	17	12
			Exposed	43	31	23	38	28	21	34	25	18	31	23	17	28	20	15	26	19	14	23	17	12	20	14	16	17	12	14	15	16	12	13	14	10	11	12	9	15	11	8
		20-27	Interior	59	53	43	59	47	38	59	42	34	59	38	31	59	34	28	54	31	25	49	28	23	41	24	20	35	20	17	30	18	14	26	15	13	23	13	11	21	12	15
			Exposed	59	34	28	52	30	25	47	27	22	42	24	20	38	22	18	35	20	17	32	18	15	27	15	13	23	13	17	20	11	14	17	15	13	15	13	11	13	12	10
		27-45	Interior	66	66	52	66	58	46	59	52	41	53	47	37	48	43	34	43	39	31	40	35	28	33	30	24	29	26	20	25	22	17	22	19	15	19	17	13	17	15	12
			Exposed	48	42	33	42	38	30	38	34	27	34	31	24	31	28	22	28	25	20	26	23	18	22	19	15	19	17	13	16	14	11	14	13	15	12	17	13	17	15	12

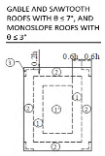
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

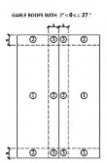
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

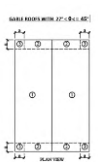
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

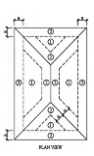












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

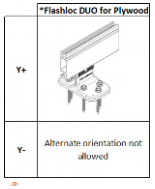
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	32	37	29	21	36	26	18	32	23	16	29	20	14	25	18	13
			Exposed	37	37	37	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	35	25	37	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	16	22	16	12
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	34	38	38	34	38	28	38	33	24	38	28	21	34	25	18	30	22	16	27	19	14	24	17	12
			Exposed	38	38	38	38	38	36	38	38	32	38	38	29	38	36	26	38	33	24	38	30	22	35	25	18	29	21	16	25	18	14	22	16	12	19	14	16	17	13	14	18	13	10
		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	42	34	47	36	29	47	31	25	46	27	22	41	24	19	36	21	17	31	20	16
			Exposed	47	47	47	47	47	44	47	47	39	47	43	35	47	39	32	47	35	29	47	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11	20	14	11
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	52	41	50	45	35	43	39	30	38	34	27	33	30	23	29	26	21	28	23	19
			Exposed	54	54	54	54	54	52	54	54	47	54	54	42	54	49	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14	18	15	12
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	29	37	37	26	37	32	22	37	27	19	32	23	16	28	20	14	25	18	13	22	16	17	20	14	10
			Exposed	37	37	32	37	37	28	37	36	25	37	32	23	37	29	21	37	27	19	34	24	17	28	20	14	24	17	12	21	15	16	18	13	14	16	12	12	14	16	11	15	11	8
		7-20	Interior	38	38	38	38	38	38	38	38	34	38	38	31	38	38	28	38	34	25	38	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15	17	12	9
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		20-27	Interior	47	47	47	47	47	46	47	47	41	47	45	37	47	41	34	47	37	31	47	34	28	47	29	24	42	24	20	36	21	17	32	18	15	28	16	13	25	14	12	17	12	9
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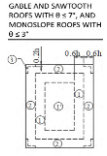
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

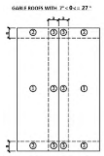
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

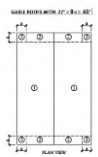
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

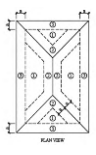












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

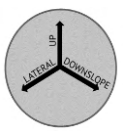
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

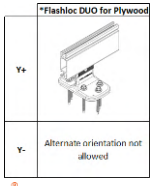
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	18	25	21	16	25	18	14	22	16	12	19	14	16	17	13	14
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	27	22	31	24	19	30	21	17
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	27	22	31	23	19	31	20	16	30	17	14	26	15	13	23	14	11
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	36	35	35	35	30	33	33	27	32	30	23	29	26	21
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		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	23	17	25	20	14	23	17	13	21	15	17	18	13	15
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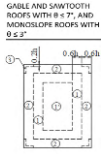
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

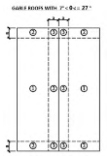
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

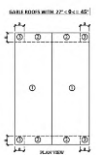
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

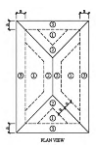












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

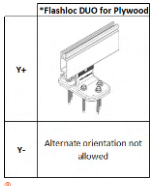
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	13
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	44	44	44	42	42	40	41	41	36
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	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	17
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	15	17	17	13	15
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			Exposed	46	46	46	46	46	45	46	46	41	46	46	37	45	42	33	43	38	30	39	35	28	33	30	23	28	25	20	25	22	17	21	19	15	19	17	13	17	15	12

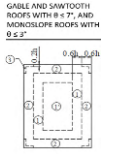
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

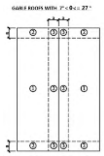
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

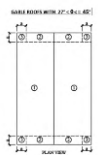
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

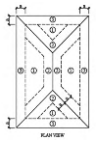












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

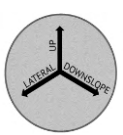
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

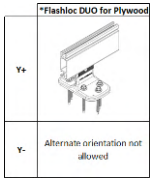
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	40	40	40	40	40	34	40	38	30	40	33	27	40	30	24	40	27	22	40	25	20	37	21	17	31	18	14	26	15	12	23	13	11	20	12	9	18	10	8
			Exposed	40	30	24	40	26	22	40	24	19	38	21	17	34	19	16	30	17	14	28	16	13	23	13	11	20	11	9	17	10	8	15	8	7	13	7	8	11	7	8
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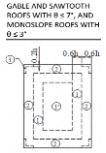
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

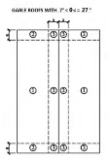
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

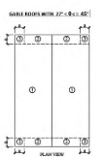
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

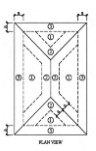












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

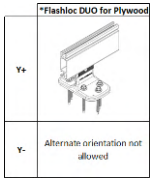
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

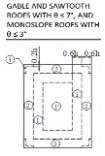
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

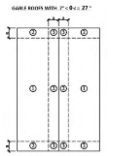
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

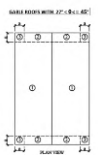
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

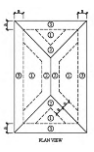












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

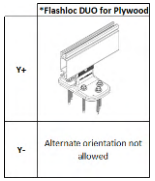
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

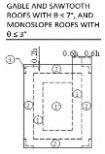
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

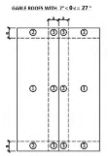
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

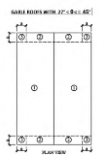
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

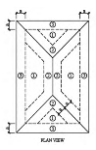












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

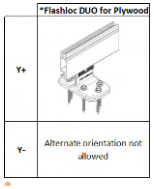
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

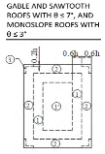
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

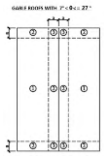
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

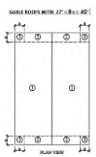
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

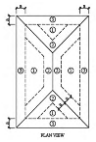












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

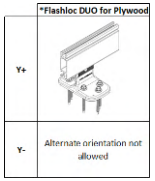
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	75	75	75	75	75	63	75	75	56	75	75	50	75	67	45	75	59	41	75	54	38	63	45	32	54	39	27	46	33	23	40	29	20	35	25	18	31	22	16
			Exposed	75	66	45	75	58	40	75	52	36	65	46	32	59	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	18	20	15	16
		7-20	Interior	76	76	62	76	76	55	76	76	49	76	61	44	76	55	40	76	49	36	63	45	33	53	38	28	45	32	24	38	28	20	33	24	18	29	21	16	26	19	14
			Exposed	76	54	40	76	48	35	60	43	32	54	39	28	49	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
		20-27	Interior	77	77	77	77	77	77	77	77	60	77	68	54	77	59	48	77	54	44	77	49	40	77	41	34	61	35	29	52	30	25	45	26	22	40	23	19	35	20	17
			Exposed	77	59	48	77	52	43	77	47	38	77	42	34	70	38	31	60	34	28	55	31	26	46	27	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	17
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	64	78	78	58	78	72	53	78	61	48	58	51	40	49	44	34	42	38	30	37	33	26	32	29	23	29	26	20
			Exposed	78	78	58	78	66	51	68	58	46	59	53	41	53	48	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
	C	0-7	Interior	75	75	48	75	61	43	75	55	38	75	49	34	62	44	31	56	40	28	51	37	26	43	31	22	36	26	18	31	23	16	27	20	14	24	17	12	21	15	16
			Exposed	62	44	31	55	39	27	49	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	16	18	13	14	16	17	12	14	15	~~11~~
		7-20	Interior	76	58	42	76	51	37	64	46	33	57	41	30	52	37	27	47	34	25	43	31	23	36	26	19	30	22	16	26	19	14	23	17	12	20	15	16	18	13	15
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		20-27	Interior	77	62	51	77	55	45	77	49	41	77	44	36	77	40	33	64	36	30	58	33	27	49	28	23	41	24	20	36	21	17	31	18	15	27	16	13	24	14	12
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	D	0-7	Interior	75	57	40	75	51	35	63	45	32	57	41	28	51	37	26	46	33	23	42	30	21	35	26	18	30	22	15	26	19	13	23	16	18	20	14	15	18	13	14
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		7-20	Interior	76	48	35	59	42	31	52	38	28	47	34	25	43	31	23	39	28	21	35	26	19	30	22	16	25	18	14	22	16	12	19	14	16	17	12	14	15	16	12
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		20-27	Interior	77	51	42	77	46	37	77	41	34	64	37	30	58	33	27	53	30	25	48	28	23	40	23	19	34	20	16	30	17	14	26	15	12	23	13	17	20	12	15
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		27-45	Interior	78	64	50	64	57	45	57	51	40	52	46	36	47	42	33	42	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	19	17	13	16	15	18
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		20-27	Interior	56	56	51	56	55	45	56	49	41	56	44	36	56	40	33	56	36	30	56	33	27	49	28	23	41	24	20	36	21	17	31	18	15	27	16	13	24	14	12
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		20-27	Interior	58	51	42	58	46	37	58	41	34	58	37	30	58	33	27	53	30	25	48	28	23	40	23	19	34	20	16	30	17	14	26	15	12	23	13	17	20	12	15
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			Exposed	46	42	33	41	37	29	37	33	26	33	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	17	14	12	15	12	16	13	16	15	~~12~~

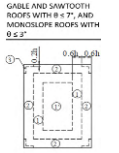
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

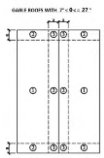
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

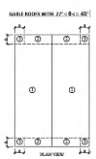
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

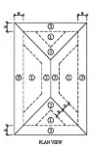












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

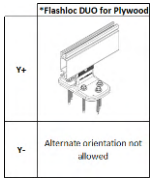
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	32	36	33	23	36	29	20	35	25	18	31	22	16
			Exposed	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	36	35	24	36	29	20	34	25	17	30	21	15	26	19	13	23	16	18	20	15	16
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	28	37	32	24	37	28	20	33	24	18	29	21	16	26	19	14
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		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	41	34	46	35	29	46	30	25	45	26	22	40	23	19	35	20	17
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		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	51	40	49	44	34	42	38	30	37	33	26	32	29	23	29	26	20
			Exposed	52	52	52	52	52	51	52	52	46	52	52	41	52	48	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
	C	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	36	28	36	36	26	36	31	22	36	26	18	31	23	16	27	20	14	24	17	12	21	15	16
			Exposed	36	36	31	36	36	27	36	35	25	36	32	22	36	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	16	18	13	14	16	17	12	14	15	11
		7-20	Interior	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	34	25	37	31	23	36	26	19	30	22	16	26	19	14	23	17	12	20	15	16	18	13	15
			Exposed	37	37	27	37	37	33	24	37	29	22	37	27	20	33	24	18	30	22	16	27	20	15	23	17	12	20	14	16	12	13	15	11	12	13	15	11	12	13	9
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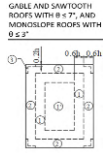
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

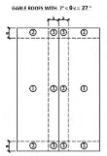
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

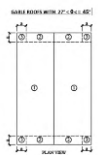
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

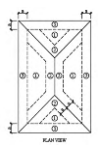












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

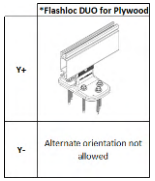
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

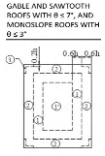
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

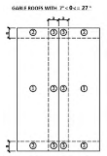
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

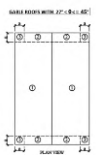
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

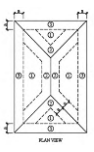












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

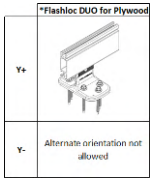
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	18	17	15	16
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14
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		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26
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		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	39	39	31
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	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	15	16	17	13	14	16	17	12	14	15
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	16	17	13	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	17	17	12	17	14	16	16	12	13	15	11	12	13	9			
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		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	24	18	25	21	16	25	19	14
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	24	28	26	21	28	23	19	28	20	17
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	34	34	34	33	33	31
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		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	19	25	22	16	25	20	15
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		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	27	23	28	24	20	28	21	18
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		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	34	34	33	33	31	32	32	27	31	30	24	29	27	21	
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	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13	17	16	18	17	14	15	17	13	14
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	12	17	14	16	17	12	14	15	16	12
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		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	38	38	38	37	37	35	35	35	30	33	33	26	32	29	23	28	25	20	25	22	18
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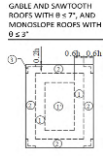
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

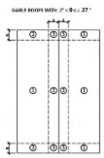
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

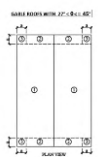
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

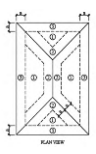












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

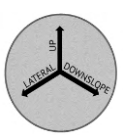
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

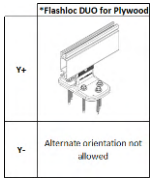
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

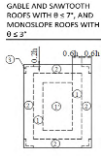
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

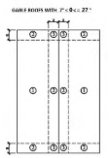
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

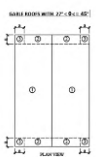
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

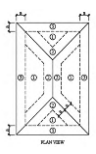












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

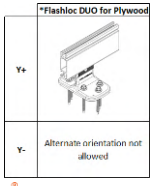
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

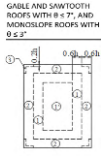
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

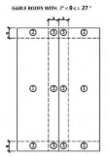
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

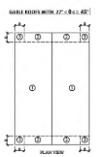
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

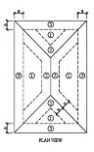












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

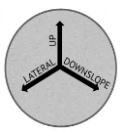
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

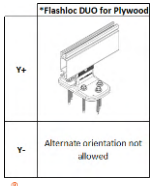
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	13	9	15	11	8
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		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	16	13	18	18	15	18	16	13	18	14	11	18	12	10
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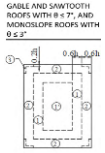
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

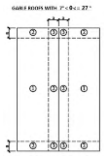
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

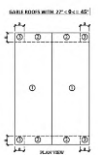
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

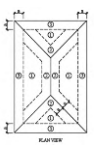












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

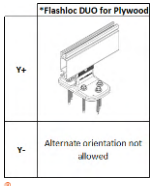
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

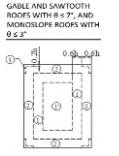
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

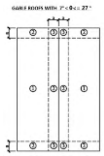
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

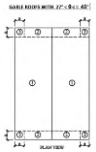
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

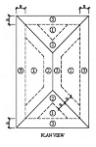












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

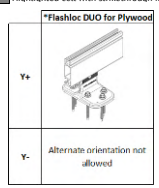
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	77	77	77	77	77	64	77	77	57	77	77	52	77	70	46	77	61	42	77	55	38	65	46	32	55	39	28	47	34	24	41	29	21	36	26	18	32	23	16
			Exposed	77	69	46	77	59	41	77	53	37	68	47	33	60	43	30	54	39	27	49	35	25	41	30	21	35	25	18	30	22	15	26	19	13	23	17	12	21	15	16
		7-20	Interior	77	77	63	77	77	56	77	77	50	77	62	45	77	56	41	77	51	37	64	46	34	54	39	28	46	33	24	39	28	21	34	25	18	30	22	16	27	19	14
			Exposed	77	56	41	77	49	36	61	44	32	55	40	29	50	36	26	45	33	24	41	30	22	35	25	18	29	21	16	25	18	14	22	16	12	19	14	16	17	13	14
		20-27	Interior	78	78	78	78	78	78	78	78	61	78	78	55	78	60	49	78	55	45	78	50	41	78	42	34	62	36	29	54	31	25	46	27	22	41	24	19	36	21	17
			Exposed	78	60	49	78	53	44	78	48	39	78	43	35	76	39	32	62	35	29	56	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	66	80	80	59	80	79	54	80	62	49	59	52	41	50	45	35	43	39	30	38	34	27	33	30	23	29	26	21
			Exposed	80	80	59	80	71	52	80	60	47	60	54	42	54	49	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
	C	0-7	Interior	77	77	49	77	63	44	77	56	39	77	50	35	64	45	32	57	41	29	52	38	26	44	32	22	37	27	19	32	23	16	28	20	14	25	18	13	22	16	17
			Exposed	63	45	32	56	40	28	50	36	25	45	32	23	41	29	21	37	27	19	34	24	17	28	20	14	24	17	12	21	15	16	18	13	14	16	12	12	14	16	~~11~~
		7-20	Interior	77	59	43	77	52	38	65	47	34	58	42	31	53	38	28	48	34	25	44	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15
			Exposed	52	38	28	47	34	25	42	30	22	37	27	20	34	25	18	31	22	16	28	20	15	24	17	13	20	15	16	17	13	14	15	17	12	13	15	~~11~~	12	13	~~10~~
		20-27	Interior	78	64	52	78	57	46	78	51	41	78	45	37	78	41	34	66	37	31	59	34	28	50	29	24	42	24	20	36	21	17	32	18	15	28	16	13	25	14	12
			Exposed	78	41	34	64	36	30	57	33	27	51	29	24	46	27	22	42	24	20	38	22	18	32	19	15	27	16	13	24	14	11	21	12	15	18	16	13	16	14	12
		27-45	Interior	80	80	62	80	80	55	80	63	50	64	57	45	58	51	40	52	47	37	48	43	34	40	36	28	34	31	24	30	27	21	26	23	18	23	20	16	20	18	14
			Exposed	57	51	40	51	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	28	22	26	23	19	22	20	16	19	17	14	17	15	12	15	13	16	13	12	14
	D	0-7	Interior	77	58	41	77	52	36	65	46	32	58	41	29	52	37	26	47	34	24	43	31	22	36	26	18	31	22	16	27	19	14	23	17	12	20	15	16	18	13	14
			Exposed	52	37	26	46	33	23	41	30	21	37	27	19	34	24	17	30	22	16	28	20	14	23	17	12	20	15	16	17	13	13	15	17	12	13	15	~~10~~	12	13	~~9~~
		7-20	Interior	77	49	36	60	43	32	54	39	28	48	35	26	43	31	23	39	29	21	36	26	19	30	22	16	26	19	14	22	16	12	19	14	16	17	12	14	15	17	12
			Exposed	43	31	23	38	28	21	34	25	18	31	23	17	28	20	15	26	19	14	23	17	12	20	14	16	17	12	14	15	16	12	13	14	~~10~~	11	12	~~9~~	15	~~11~~	~~8~~
		20-27	Interior	78	53	43	78	47	38	78	42	34	67	38	31	59	34	28	54	31	25	49	28	23	41	24	20	35	20	17	30	18	14	26	15	13	23	13	11	21	12	15
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		27-45	Interior	80	67	52	68	58	46	59	52	41	53	47	37	48	43	34	43	39	31	40	35	28	33	30	24	29	26	20	25	22	17	22	19	15	19	17	13	17	15	12
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		7-20	Interior	63	63	63	63	63	56	63	63	50	63	62	45	63	56	41	63	51	37	63	46	34	54	39	28	46	33	24	39	28	21	34	25	18	30	22	16	27	19	14
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		20-27	Interior	72	72	72	72	72	72	72	72	61	72	72	55	72	60	49	72	55	45	72	50	41	72	42	34	62	36	29	54	31	25	46	27	22	41	24	19	36	21	17
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		7-20	Interior	63	59	43	63	52	38	63	47	34	58	42	31	53	38	28	48	34	25	44	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15
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		27-45	Interior	79	67	52	68	58	46	59	52	41	53	47	37	48	43	34	43	39	31	40	35	28	33	30	24	29	26	20	25	22	17	22	19	15	19	17	13	17	15	12
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	C	0-7	Interior	47	47	47	47	47	44	47	47	39	47	47	35	47	45	32	47	41	29	47	38	26	44	32	22	37	27	19	32	23	16	28	20	14	25	18	13	22	16	17
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		7-20	Interior	47	47	43	47	47	38	47	47	34	47	42	31	47	38	28	47	34	25	44	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15
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		20-27	Interior	57	57	52	57	57	46	57	51	41	57	45	37	57	41	34	57	37	31	57	34	28	50	29	24	42	24	20	36	21	17	32	18	15	28	16	13	25	14	12
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		27-45	Interior	63	63	62	63	63	55	63	63	50	63	57	45	58	51	40	52	47	37	48	43	34	40	36	28	34	31	24	30	27	21	26	23	18	23	20	16	20	18	14
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		7-20	Interior	47	47	36	47	43	32	47	39	28	47	35	26	43	31	23	39	29	21	36	26	19	30	22	16	26	19	14	22	16	12	19	14	16	17	12	14	15	17	12
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		20-27	Interior	59	53	43	59	47	38	59	42	34	59	38	31	59	34	28	54	31	25	49	28	23	41	24	20	35	20	17	30	18	14	26	15	13	23	13	11	21	12	15
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		27-45	Interior	66	66	52	66	58	46	59	52	41	53	47	37	48	43	34	43	39	31	40	35	28	33	30	24	29	26	20	25	22	17	22	19	15	19	17	13	17	15	12
			Exposed	48	42	33	42	38	30	38	34	27	34	31	24	31	28	22	28	25	20	26	23	18	22	19	15	19	17	13	16	14	11	14	13	15	12	17	13	17	15	12

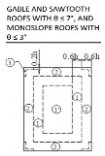
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

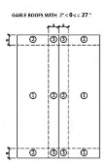
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

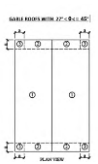
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

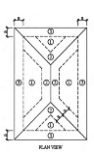












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

Basic Wind Speed (mph)

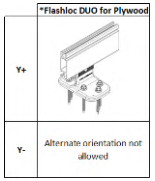
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	32	37	29	21	36	26	18	32	23	16	29	20	14
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		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	34	38	38	34	38	28	28	38	33	24	32	22	16	28	20	14	25	18	13	22	16	17	20	14	10
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		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	42	34	47	36	29	47	31	25	46	27	22	41	24	19	36	21	17	25	17	13
			Exposed	47	47	47	47	47	44	47	47	39	47	43	35	47	39	32	47	35	29	47	32	26	47	27	22	40	23	19	34	20	16	30	17	14	26	15	13	23	14	11	17	12	9
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	52	41	50	45	35	43	39	30	38	34	27	33	30	23	29	26	21	25	21	16
			Exposed	54	54	54	54	54	52	54	54	47	54	54	42	54	49	38	49	44	35	45	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14	17	14	10
	C	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	29	37	37	26	37	32	22	37	27	19	32	23	16	28	20	14	25	18	13	22	16	17	19	13	9
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		7-20	Interior	38	38	38	38	38	38	38	38	34	38	38	31	38	38	28	38	34	25	38	31	23	37	26	20	31	23	17	27	20	14	23	17	13	21	15	17	18	13	15	17	12	9
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		27-45	Interior	54	54	54	54	54	54	54	54	50	54	54	45	54	51	40	52	47	37	48	43	34	40	36	28	34	31	24	30	27	21	26	23	18	23	20	16	20	18	14	17	14	11
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		7-20	Interior	38	38	36	38	38	32	38	38	28	38	35	26	38	31	23	38	29	21	36	26	19	30	22	16	26	18	14	22	16	12	19	14	16	17	12	14	15	17	12	14	10	8
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		27-45	Interior	56	56	52	56	56	46	56	52	41	53	47	37	48	43	34	43	39	31	40	35	28	33	30	24	29	26	20	25	22	17	22	19	15	19	17	13	16	14	11	14	13	10
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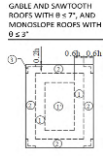
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

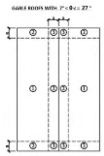
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

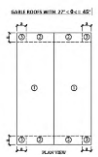
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

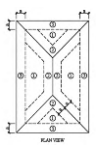












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

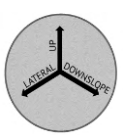
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

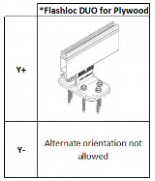
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	27	22	31	24	19	30	21	17
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		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	35	35	35	30	33	33	27	32	30	23	29	26	21
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		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	23	17	25	20	14	23	17	13	21	15	17	18	13	15
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		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	24	20	26	20	17	25	18	14	24	15	13	23	13	11	21	12	15
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		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	30	30	28	29	29	24	27	26	20	25	22	17	22	19	15	19	17	13	17	15	12
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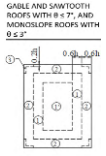
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

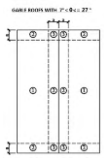
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

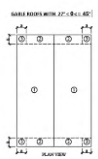
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

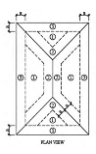












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

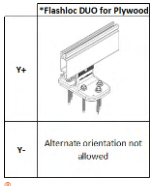
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

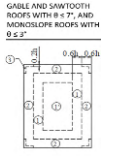
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

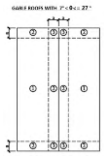
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

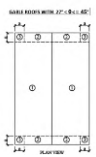
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

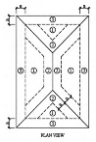












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

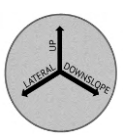
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

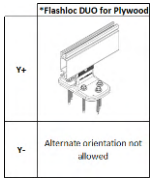
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	40	40	40	40	40	40	40	40	36	40	40	32	40	38	29	40	34	27	35	31	24	29	26	20	25	22	17	21	19	15	19	17	13	16	15	11	14	13	10
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		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	18	24	23	17	24	19	14	23	16	12	19	14	10	17	12	9	15	11	8	13	9	7
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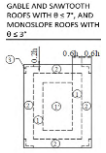
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

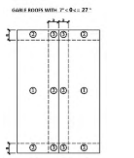
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

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









UNIRAC

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

SPAN TABLES

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

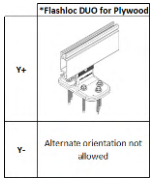
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	21	17	24	18	14	24	15	12	23	13	11	20	12	9	18	10	8
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		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	26	20	25	22	17	21	19	15	19	17	13	16	15	11	14	13	10
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		7-20	Interior	19	19	19	19	19	19	19	19	17	19	19	15	19	19	14	19	17	12	19	15	11	18	13	10	15	11	8	13	10	7	11	8	9	10	7	8	9	6	7
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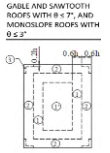
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

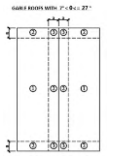
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

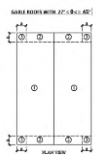
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

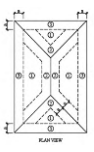












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

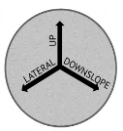
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

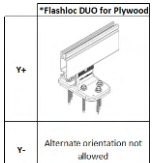
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

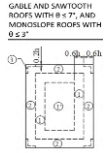
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

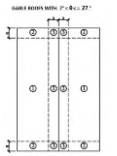
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

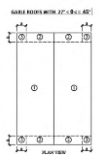
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

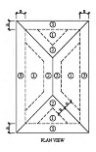












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

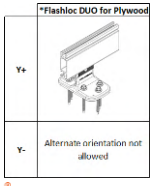
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

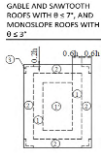
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

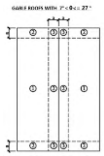
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

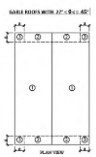
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

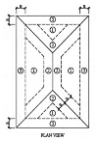












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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

SPAN TABLES

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

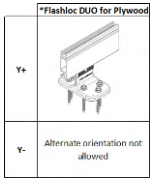
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	75	75	75	75	75	63	75	75	56	75	75	50	75	67	45	75	59	41	75	54	38	63	45	32	54	39	27	46	33	23	40	29	20	35	25	18	31	22	16
			Exposed	75	66	45	75	58	40	75	52	36	65	46	32	59	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	18	20	15	16
		7-20	Interior	76	76	62	76	76	55	76	76	49	76	61	44	76	55	40	76	49	36	63	45	33	53	38	28	45	32	24	38	28	20	33	24	18	29	21	16	26	19	14
			Exposed	76	54	40	76	48	35	60	43	32	54	39	28	49	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	16	17	12	14
		20-27	Interior	77	77	77	77	77	77	77	77	60	77	68	54	77	59	48	77	54	44	77	49	40	77	41	34	61	35	29	52	30	25	45	26	22	40	23	19	35	20	17
			Exposed	77	59	48	77	52	43	77	47	38	77	42	34	70	38	31	60	34	28	55	31	26	46	27	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	12
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	64	78	78	58	78	72	53	78	61	48	58	51	40	49	44	34	42	38	30	37	33	26	32	29	23	29	26	20
			Exposed	78	78	58	78	66	51	68	58	46	59	53	41	53	48	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
	C	0-7	Interior	75	75	48	75	61	43	75	55	38	75	49	34	62	44	31	56	40	28	51	37	26	43	31	22	36	26	18	31	23	16	27	20	14	24	17	12	21	15	16
			Exposed	62	44	31	55	39	27	49	35	25	44	32	22	40	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	16	18	13	14	16	17	12	14	15	~~11~~
		7-20	Interior	76	58	42	76	51	37	64	46	33	57	41	30	52	37	27	47	34	25	43	31	23	36	26	19	30	22	16	26	19	14	23	17	12	20	15	16	18	13	15
			Exposed	51	37	27	46	33	24	41	29	22	37	27	20	33	24	18	30	22	16	27	20	15	23	17	12	20	14	16	17	12	13	15	16	~~11~~	13	14	~~10~~	17	13	~~9~~
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		7-20	Interior	76	48	35	59	42	31	52	38	28	47	34	25	43	31	23	39	28	21	35	26	19	30	22	16	25	18	14	22	16	12	19	14	16	17	12	14	15	16	12
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		7-20	Interior	46	46	42	46	46	37	46	46	33	46	41	30	46	37	27	46	34	25	43	31	23	36	26	19	30	22	16	26	19	14	23	17	12	20	15	16	18	13	15
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		20-27	Interior	56	56	51	56	55	45	56	49	41	56	44	36	56	40	33	56	36	30	56	33	27	49	28	23	41	24	20	36	21	17	31	18	15	27	16	13	24	14	12
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		7-20	Interior	46	46	35	46	42	31	46	38	28	46	34	25	43	31	23	39	28	21	35	26	19	30	22	16	25	18	14	22	16	12	19	14	16	17	12	14	15	16	12
			Exposed	42	31	22	38	27	20	34	24	18	30	22	16	27	20	15	25	18	13	23	17	12	19	14	16	16	12	12	14	~~10~~	17	12	~~9~~	15	~~11~~	~~8~~					
		20-27	Interior	58	51	42	58	46	37	58	41	34	58	37	30	58	33	27	53	30	25	48	28	23	40	23	19	34	20	16	30	17	14	26	15	12	23	13	17			
			Exposed	58	33	27	51	29	24	46	26	22	41	24	20	37	22	18	34	20	16	31	18	15	26	15	12	22	13	16	19	17	14	17	15	12	15	13	~~11~~			
		27-45	Interior	64	64	50	64	57	45	57	51	40	52	46	36	47	42	33	42	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	19	17	13			
			Exposed	46	42	33	41	37	29	37	33	26	33	30	24	30	27	21	28	25	19	25	23	18	21	19	15	18	16	13	16	14	17	14	12	15						

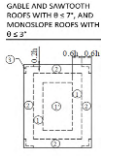
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

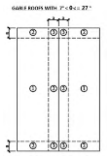
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

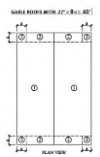
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

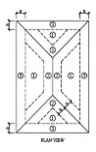












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

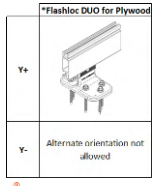
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	32	36	33	23	36	29	20	35	25	18	31	22	16
			Exposed	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	36	35	24	36	29	20	34	25	17	30	21	15	26	19	13	23	16	18	20	15	16
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	28	37	32	24	34	28	20	33	24	18	29	21	16	26	19	14
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		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	41	34	46	35	29	46	30	25	45	26	22	40	23	19	35	20	17
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		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	51	40	49	44	34	42	38	30	37	33	26	32	29	23	29	26	20
			Exposed	52	52	52	52	52	51	52	52	46	52	52	41	52	48	37	48	43	34	44	39	31	37	33	26	32	28	22	27	25	19	24	21	17	21	19	15	19	17	13
	C	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	36	28	36	36	26	36	31	22	36	26	18	31	23	16	27	20	14	24	17	12	21	15	16
			Exposed	36	36	31	36	36	27	36	35	25	36	32	22	36	29	20	36	26	18	33	24	17	28	20	14	24	17	12	20	15	16	18	13	14	16	17	12	14	15	11
		7-20	Interior	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	34	25	37	31	23	36	26	19	30	22	16	26	19	14	23	17	12	20	15	16	18	13	15
			Exposed	37	37	27	37	37	33	24	37	27	20	33	24	18	30	22	16	27	20	15	25	18	13	23	17	12	20	14	23	17	12	20	15	11	13	15	12	13	9	9
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		27-45	Interior	43	43	43	43	43	43	43	43	40	43	43	36	41	41	33	40	38	30	39	35	27	33	29	23	28	25	20	24	22	17	21	19	15	19	17	13	16	15	18
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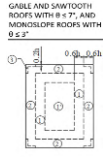
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

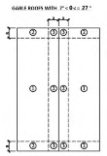
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

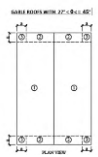
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

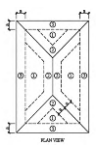












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

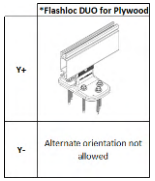
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2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

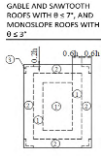
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

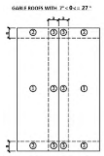
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

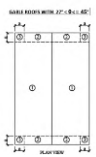
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

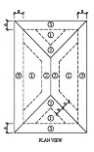












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

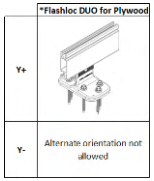
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3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

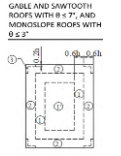
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

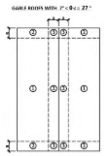
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

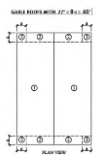
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

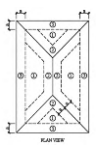












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

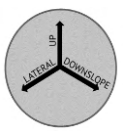
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

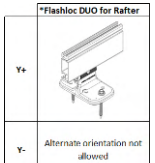
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	109	127	127	89	127	123	68	127	87	53	124	70	43	93	58	37	76	48	33	64	41	29
			Exposed	127	127	127	127	127	99	127	127	83	127	124	70	127	98	60	127	85	52	127	75	46	94	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	93	127	127	78	127	124	58	127	75	44	126	58	38	81	46	33	64	39	29	52	35	26
			Exposed	127	127	127	127	127	89	127	127	72	127	125	60	127	87	51	127	73	43	127	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	83	128	89	62	128	67	48	128	53	40	99	42	35	81	38	31
			Exposed	128	128	128	128	128	128	128	128	127	128	128	87	128	126	72	128	86	60	128	73	51	128	53	40	96	42	34	75	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	126	129	127	82	129	92	64	125	73	51	78	60	42	62	50	37
			Exposed	129	129	129	129	129	129	129	129	129	129	127	129	129	129	96	129	126	81	129	99	69	126	74	52	75	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	127	127	127	127	127	124	127	127	91	127	127	77	127	115	66	127	93	57	127	81	50	105	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	127	114	65	127	89	55	127	76	46	114	65	41	91	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	127	127	127	127	127	100	127	127	80	127	127	66	127	97	56	127	81	48	127	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	127	96	55	127	77	46	127	64	40	97	53	36	79	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	30	22	24	18
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	98	128	128	80	128	97	67	128	81	57	128	59	42	123	45	36	83	38	31	66	33	27	54	29	24	45	26	22
			Exposed	128	128	79	128	92	64	128	74	53	128	61	44	128	52	39	112	44	36	89	40	33	67	34	28	53	29	24	43	25	21	37	22	18	27	33	29	24	29	26	21
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	125	129	129	89	129	124	76	129	82	57	84	63	44	63	51	38	50	42	33	41	37	29	36	33	26
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	D	0-7	Interior	127	127	97	127	127	80	127	122	67	127	94	57	127	81	50	125	70	43	100	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
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		7-20	Interior	127	127	87	127	127	70	127	123	57	127	82	48	127	68	42	126	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	127	68	41	125	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	18	31	22	17	27	20	15
		20-27	Interior	128	128	128	128	128	126	128	128	83	128	98	68	128	81	57	128	68	48	128	57	42	103	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	128	80	56	128	65	46	128	53	40	118	45	36	89	40	33	76	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	129	129	129	129	129	129	129	129	126	129	129	90	129	124	76	129	92	65	129	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	129	124	75	129	89	62	126	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	89	119	119	68	119	87	53	119	70	43	93	58	37	76	48	33	64	41	29
			Exposed	119	119	119	119	119	99	119	119	83	119	119	70	119	98	60	119	85	52	119	75	46	94	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	93	119	119	78	119	119	58	119	75	44	119	58	38	81	46	33	64	39	29	52	35	26
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		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	83	124	89	62	124	67	48	124	53	40	99	42	35	81	38	31
			Exposed	124	124	124	124	124	124	124	124	124	124	124	87	124	124	72	124	86	60	124	73	51	124	53	40	96	42	34	75	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	82	127	92	64	125	73	51	78	60	42	62	50	37
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	96	127	126	81	127	99	69	126	74	52	75	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	119	119	119	119	119	119	119	119	91	119	119	77	119	115	66	119	93	57	119	81	50	105	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	119	114	65	119	89	55	119	76	46	114	65	41	91	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	119	119	119	119	119	100	119	119	80	119	119	66	119	97	56	119	81	48	119	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
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		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	98	124	124	80	124	97	67	124	81	57	124	59	42	123	45	36	83	38	31	66	33	27	54	29	24	45	26	22
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		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	89	127	124	76	127	82	57	84	63	44	63	51	38	50	42	33	41	37	29	36	33	26
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	D	0-7	Interior	119	119	97	119	119	80	119	119	67	119	94	57	119	81	50	119	70	43	100	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
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		7-20	Interior	119	119	87	119	119	70	119	119	57	119	82	48	119	68	42	119	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
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		20-27	Interior	126	126	126	126	126	126	126	126	83	126	98	68	126	81	57	126	68	48	126	57	42	103	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
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		27-45	Interior	128	128	128	128	128	128	128	128	126	128	128	90	128	124	76	128	92	65	128	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
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20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	89	105	105	68	105	87	53	105	70	43	93	58	37	76	48	33	64	41	29			
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		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	93	105	105	78	105	105	58	105	75	44	105	58	38	81	46	33	64	39	29	52	35	26
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		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	83	115	89	62	115	67	48	115	53	40	99	42	35	81	38	31
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		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	82	112*	92	64	112*	73	51	78	60	42	62	50	37
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	96	112*	112*	81	112*	99	69	112*	74	52	75	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	105	105	105	105	105	105	105	105	91	105	105	77	105	105	66	105	93	57	105	81	50	105	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
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		7-20	Interior	105	105	105	105	105	105	105	105	80	105	105	66	105	97	56	105	81	48	105	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
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		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	98	115	115	80	115	97	67	115	81	57	115	59	42	115	45	36	83	38	31	66	33	27	54	29	24	45	26	22
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		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	89	112*	112*	76	112*	82	57	84	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	112*	112*	112*	112*	112*	85	112*	112*	70	112*	85	59	112*	72	50	82	62	43	69	54	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	105	105	97	105	105	80	105	105	67	105	94	57	105	81	50	105	70	43	100	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	105	80	49	105	68	42	94	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	18	21	24	17
		7-20	Interior	105	105	87	105	105	70	105	105	57	105	82	48	105	68	42	105	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	105	68	41	105	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	18	31	22	17	27	20	15
		20-27	Interior	117	117	117	117	117	117	117	117	83	117	98	68	117	81	57	117	68	48	117	57	42	103	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	117	80	56	117	65	46	117	53	40	117	45	36	89	40	33	76	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	116	116	116	116	116	116	116	116	116	116	116	90	116	116	76	116	92	65	116	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	116	116	75	116	89	62	116	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21

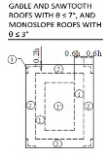
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

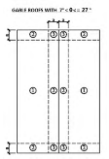
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

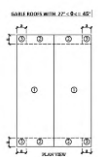
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

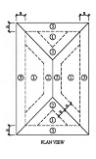












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

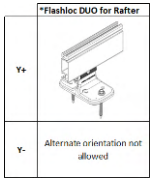
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	89	94	94	68	94	87	53	94	70	43	93	58	34	76	48	33	64	41	29
			Exposed	94	94	94	94	94	94	94	94	83	94	94	70	94	94	60	94	85	52	94	75	46	94	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	78	94	94	58	94	75	44	94	58	38	81	46	33	64	39	29	52	35	26	
			Exposed	94	94	94	94	94	89	94	94	72	94	94	60	94	87	51	94	73	43	94	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	83	100*	89*	62	100*	67	48	100*	53	40	99*	42	35	81	38	31
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	87	100*	100*	72	100*	86	60	100*	73	51	100*	53	40	96*	42	34	75	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	83*	95*	92*	64	95*	73	51	78	60	42	62	50	37
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*
	C	0-7	Interior	94	94	94	94	94	94	94	94	91	94	94	77	94	94	66	94	93	57	94	81	50	94	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	94	94	94	89	55	94	76	46	94	65	41	91	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20	
		7-20	Interior	94	94	94	94	94	94	94	94	80	94	94	66	94	94	56	94	81	48	94	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	94	94	55	94	94	77	46	94	64	40	94	53	36	79	45	33	67	40	30	57	37	27	43	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	98*	100*	100*	80	100*	97*	67	100*	81	57	100*	59	42	100*	45	36	83	38	31	66	33	27	54	29	24	45	26	22			
			Exposed	100*	100*	79	100*	92*	64	100*	74	53	100*	61	44	100*	52	39	100*	44	36	89*	40	33	67	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	89*	95*	95*	76	95*	82*	57	84*	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	95*	95*	95*	95*	95*	86*	95*	95*	70	95*	85*	59	95*	72	50	83*	62	43	69	54	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	94	94	94	94	94	80	94	94	67	94	94	57	94	81	50	94	70	43	94	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	94	80	49	94	68	42	94	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	94	94	87	94	94	70	94	94	57	94	82	48	94	68	42	94	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	94	68	41	94	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	104*	104*	104*	104*	104*	104*	104*	104*	83	104*	98*	68	104*	81	57	104*	68	48	104*	57	42	103*	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	104*	80	56	104*	65	46	104*	53	40	104*	45	36	89	40	33	76	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	30	24	22	18
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	91*	100*	100*	76	100*	93*	65	100*	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	100*	100*	75	100*	89*	62	100*	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	68	90	87	53	90	70	43	90	58	34	74	47	32	60	39	28
			Exposed	90	90	90	90	90	83	90	90	70	90	90	70	90	90	60	90	75	46	90	58	38	74	47	32	60	39	28	48	33	25	40	29	22	35	26	29	31	23	25
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	78	94*	94*	58	94*	75	44	94*	58	38	81	46	33	64	39	29	52	35	26
			Exposed	94*	94*	94*	94*	94*	89*	94*	94*	72	94*	94*	60	94*	87*	51	94*	73	43	94*	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	62	80*	67	48	80*	53	40	80*	42	35	80*	38	31
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	80*	60	80*	73*	51	80*	53	40	80*	42	34	75*	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65*	75*	73*	51	75*	60	42	62	50	37
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	74*	52	75*	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	77	90	90	66	90	90	57	90	81	50	90	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	90	90	65	90	89	55	90	76	46	90	65	41	90	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	66	94*	94*	56	94*	81	48	94*	69	42	92*	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	94*	94*	55	94*	77	46	94*	64	40	94*	53	36	79	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	67	80*	80*	57	80*	59	42	80*	45	36	80*	38	31	66	33	27	54	29	24	45	26	22
			Exposed	80*	80*	79*	80*	80*	64	80*	74*	53	80*	61	44	80*	52	39	80*	44	36	80*	40	33	67	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	57	75*	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	70*	75*	75*	59	75*	72*	50	75*	62	43	69*	54	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	93	93	93	93	93	80	93	93	67	93	93	57	93	81	50	93	70	43	93	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	93	80	49	93	68	42	93	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	97*	97*	87	97*	97*	70	97*	97*	57	97*	82	48	97*	68	42	97*	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	97*	68	41	97*	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	83*	88*	88*	68	88*	81*	57	88*	68	48	88*	57	42	88*	43	35	78*	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	88*	80*	56	88*	65	46	88*	53	40	88*	45	36	88*	40	33	76*	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	30	24	22	18
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	76*	82*	82*	65	82*	80*	56	79*	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	82*	82*	75*	82*	82*	62	82*	74*	52	82*	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	68	84	84	53	84	70	43	84	58	37	76	48	33	64	41	29
			Exposed	84	84	84	84	84	84	84	84	83	84	84	70	84	84	60	84	84	52	84	75	46	84	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	78*	80*	80*	58	80*	75*	44	80*	58	38	80*	46	33	64	39	29	52	35	26			
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	80*	60	80*	80*	51	80*	73*	43	80*	62	39	80*	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62*	66*	66*	62*	66*	66*	62*	66*	66*	62*	66*	66*	62*	66*	38	31
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	60*	66*	66*	51	66*	53	40	66*	42	34	66*	36	30	61*	31	26	50	28	23	42	25	31
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	51	62*	62*	51	62*	60*	42	62*	50	37
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	53*	62*	58*	41	57*	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	77	84	84	66	84	84	57	84	81	50	84	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	84	84	65	84	84	55	84	76	46	84	65	41	84	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	66	80*	80*	56	80*	80*	48	80*	69*	42	80*	51	35	68*	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	80*	80*	55	80*	77*	46	80*	64	40	80*	53	36	79*	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	57*	66*	59*	42	66*	45	36	66*	38	31	66*	33	27	54	29	24	45	26	22
			Exposed	66*	66*	66*	66*	66*	64*	66*	66*	53	66*	61*	44	66*	52	39	66*	44	36	66*	40	32	66*	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	44	62*	51	38	50	42	33	41	37	29	36	33	26
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	62*	50	62*	62*	43	62*	54*	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	87	87	87	87	87	80	87	87	67	87	87	57	87	81	50	87	70	43	87	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	87	80	49	87	68	42	87	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	88*	88*	87*	88*	88*	70	88*	88*	57	88*	82*	48	88*	68	42	88*	58	38	88*	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	88*	68	41	88*	56	37	82*	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	72*	57	72*	68*	48	72*	57	42	72*	43	35	72*	37	30	62*	32	26	50	28	23	42	24	31	37	22	27
			Exposed	72*	72*	56	72*	65*	46	72*	53	40	72*	45	36	72*	40	33	72*	36	30	66*	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	30	24	22	18
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	65*	68*	68*	56	68*	61*	42	59*	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	68*	68*	68*	68*	68*	62*	68*	68*	52	68*	63*	44	68*	54	39	59*	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21

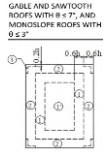
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

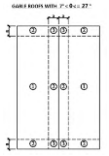
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

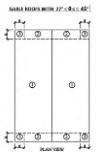
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

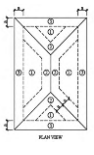












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

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

SPAN TABLES

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

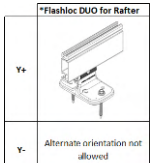
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	53	77	70	43	77	58	37	76	48	33	64	41	29			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	70	77	77	60	77	77	52	77	75	46	77	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	44	67*	58*	38	67*	46	33	64*	39	29	52	35	26			
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	51	67*	67*	43	67*	62*	39	67*	47	33	62*	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	48*	56*	53*	40	56*	42	35	56*	38	31			
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	51*	56*	53*	40	56*	42	34	56*	36	30	56*	31	26	50*	28	23	42	25	31
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	42	53*	50*	37			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	41	53*	47*	36	46*	39	31	39	35	28	34	31	24			
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	66	77	77	57	77	77	50	77	63	40	77	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	77	77	65	77	77	55	77	76	46	77	65	41	77	57	37	77	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	29
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	56	67*	67*	48	67*	67*	42	67*	51	35	67*	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	67*	67*	55	67*	67*	46	67*	64*	40	67*	53	36	67*	45	33	67*	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	30	22	24	18
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	42	56*	45	36	56*	38	31	56*	33	27	54*	29	24	45	26	22
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	56*	44	56*	52*	39	56*	44	36	56*	40	33	56*	34	28	53*	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	44	53*	51*	38	50*	42	33	41	37	29	36	33	26			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	43	53*	53*	39	51*	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26	
	D	0-7	Interior	81	81	81	81	81	80	81	81	67	81	81	57	81	81	50	81	70	43	81	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	81	80	49	81	68	42	81	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	74*	74*	74*	74*	70*	74*	74*	74*	57	74*	74*	48	74*	68*	42	74*	58	38	74*	50	35	65*	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	74*	68*	41	74*	56	37	74*	46	33	68*	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	57*	61*	61*	48	61*	57*	42	61*	43	35	61*	37	30	61*	32	26	50	28	23	42	24	31	37	22	27
			Exposed	61*	61*	56*	61*	61*	46	61*	53*	40	61*	45	36	61*	40	33	61*	36	30	61*	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	42	58*	48	36	46	40	32	39	35	28	34	31	24			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	52*	58*	58*	44	58*	54*	39	58*	47	36	50*	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
70	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	68	37	70	48	33	64	41	29						
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	58	38	70	47	32	60	39	28	42	30	21	37	27	29
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	44	58*	58*	38	58*	46	33	58*	39	29	52*	35	26
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	51*	58*	58*	43	58*	58*	39	58*	47	33	58*	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	42*	35	48*	38	31
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	42*	34	48*	36	30	48*	31	26
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	37			
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	45*	40*	31	39	35	28	34	31	24			
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	57	70	70	50	70	63	40	70	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	70	70	65	70	70	55	70	70	46	70	65	41	70	57	37	70	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	29
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	48	58*	58*	42	58*	51*	35	58*	41	30	53*	35	26	42	31	23	37	27	30	33	24	27
			Exposed	58*	58*	55*	58*	58*	46	58*	58*	40	58*	53*	36	58*	45	33	58*	40	30	57*	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	45*	36	48*	38	31	48*	33	27	48*	29	24	45*	26	22
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	39	48*	44*	36	48*	40	33	48*	34	28	48*	29	24	43*	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40	46*	46*	33	46*	46*	31	46*	42*	33	41*	37	29	36	33	26
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	46*	36	45*	40*	31	39	35	28	34	31	24			
	D	0-7	Interior	75	75	75	75	75	75	75	75	67	75	75	57	75	75	50	75	70	43	75	62	39	75	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	75	75	49	75	68	42	75	58	38	75	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	57*	64*	64*	48	64*	64*	42	64*	58*	38	64*	50	35	64*	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	64*	64*	41	64*	56*	37	64*	46	33	64*	40	30	57*	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	48*	53*	53*	42	53*	43	35	53*	37	30	53*	32	26	50*	28	23	42	24	31	37	22	27
			Exposed	53*	53*	53*	53*	53*	46*	53*	53*	40	53*	45	36	53*	40	33	53*	36	30	53*	33	27	51*	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	42	50*	48*	36	46*	40	32	39	35	28	34	31	24			
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	44*	50*	50*	39	50*	47*	36	49*	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
80	B	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	53	62	62	43	62	58	37	62	48	33	62	41	29
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	62	52	62	62	46	62	58	38	62	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	44	51*	51*	38	51*	46*	33	51*	39	29	51*	35	26
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	43	51*	51*	39	51*	47*	33	51*	38	28	48*	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	42*	35	43*	38*	31
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	42*	34	43*	36	30	43*	31	26	43*	28	23	42*	25	31
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	39*	31	39*	35*	28	35*	31	24
	C	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
			Exposed	62	62	62	62	62	55	62	62	46	62	62	41	62	57	37	62	50	34	62	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	30
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*
			Exposed	51*	51*	51*	51*	51*	46*	51*	51*	40	51*	51*	36	51*	45*	33	51*	40	30	51*	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	36	43*	40*	33	43*	34	28	43*	29	24	43*	25	21	37*	22	27	33	29	24	29	26	21
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	40*	40*	40*	40*	40*	36*	33	26
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	33	40*	40*	30	40*	40*	33	40*	40*	30	36*	33	26
	D	0-7	Interior	69	69	69	69	69	69	69	69	67	69	69	57	69	69	50	69	69	43	69	62	39	69	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	69	69	49	69	68	42	69	58	38	69	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	48	57*	57*	42	57*	57*	38	57*	50*	35	57*	40	29	49*	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	57*	57*	37	57*	56*	37	57*	46	33	57*	40	30	57*	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	43*	35	47*	37	30	47*	32	26	47*	28	23	42*	24	31	37	22	27
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	40	47*	45*	36	47*	40	33	47*	36	30	47*	33	27	47*	28	23	41*	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	36	45*	40*	32	39*	35	28	34	31	24			
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	40*	45*	45*	36	45*	42*	33	39*	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21

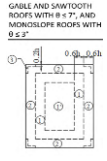
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

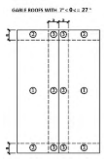
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

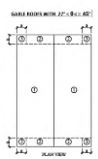
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

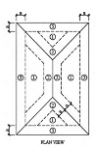












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

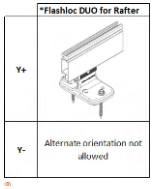
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	37	55	48	33	55	41	29
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	46	55	55	38	55	47	32	55	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	33	46*	46*	33	46*	46*	35	46*	35	26
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	43*	46*	46*	39	46*	46*	33	46*	38	28	46*	33	25	40*	29	22	35	26	29	31	23	25
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	31	38*	38*	31
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	36*	30	38*	31	26	38*	28	23	38*	25	31
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	31	36*	35*	28	34*	31	24
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	40	55	51	34	55	42	29	53	36	26	45	32	23	39	28	30
			Exposed	55	55	55	55	55	55	55	55	46	55	55	41	55	55	37	55	50	34	55	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	35	46*	41*	30	46*	35	26	42*	31	23	37	27	30	33	24	27
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	46*	36	46*	45*	33	46*	40*	30	46*	37	27	43*	31	23	36	27	30	32	23	26	28	30	23	24	27	30	22	24	18
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	36*	38*	38*	31	38*	33*	27	38*	29	24	38*	26	22
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	34*	28	38*	29	24	38*	25	21	37*	22	27	33*	29	24	29	26	21
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	36*	33*	26			
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	35*	28	36*	36*	29	35*	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	57	61	61	50	61	61	43	61	61	39	61	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25	
			Exposed	61	61	49	61	61	42	61	58	38	61	50	34	61	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	48*	51*	51*	42	51*	51*	38	51*	50*	35	51*	40	29	49*	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	51*	51*	41	51*	51*	37	51*	46*	33	51*	40	30	51*	37	27	48*	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	37*	30	42*	32	26	42*	28	23	42*	24	31	37*	22	27
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	36	42*	40*	33	42*	36	30	42*	33	27	42*	28	23	41*	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	32	39*	35*	28	34	31	24	30	27	22	30	27	21			
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	36*	40*	40*	33	39*	35*	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
100	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	37	50	48	33	50	41	29
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	38	50	47	32	50	39	28	40	34	24	42	30	21	37	27	28
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	33	42*	39*	29	42*	35	26
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	33	42*	38*	28	42*	33	25	40*	29	22	35	26	29	31	23	25
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	47*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45*	52*	48*	39	52*	42	35
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	42	49*	47*	37
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	40	50	50	34	50	42	29	50	36	26	45	32	23	39	28	30
			Exposed	50	50	50	50	50	50	50	50	46	50	50	41	50	50	37	50	50	34	50	44	31	50	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	41*	30	42*	35	26	42*	31	23	37*	27	30	33	24	27
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	36*	42*	42*	33	42*	40*	30	42*	37*	27	42*	31	23	36*	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	47*	52*	50*	42	52*	44	37	52*	39	33
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	51*	42	52*	43	36	52*	38	31	52*	33	27	49*	29	24	44	26	21
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	39			
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	47*	38	46*	41	33	41	36	29	36	32	26
	D	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	43	55	55	39	55	49	33	55	40	28	50	35	25	42	30	21	37	27	29	33	24	25	
			Exposed	55	55	49	55	55	42	55	55	38	55	50	34	55	44	31	55	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	46*	35	46*	40*	29	46*	34	25	40*	29	22	35	26	29	31	23	25	27	30	22
			Exposed	46*	46*	41*	46*	46*	37	46*	46*	33	46*	40*	30	46*	37	27	46*	33	25	42*	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	37*	30	38*	32	26	38*	28	23	38*	24	31	37*	22	27
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	36*	38*	38*	33*	38*	36*	30	38*	33*	27	38*	28	23	38*	24	30	35*	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*	36*	35*	28	34*	31	24			
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	35*	28	34*	30	24	29	26	21	25	23	27	22	30	24	30	27	21

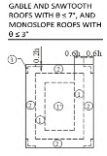
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

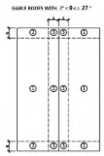
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

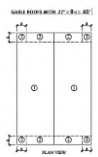
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

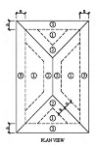












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

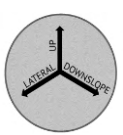
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

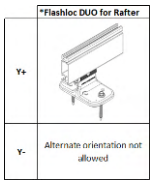
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	147	150	144	127	150	134	88	147	126	63	138	101	55	131	75	49
			Exposed	150	150	150	150	150	150	150	150	146	150	150	138	150	150	132	150	143	126	150	137	103	148	127	63	137	96	54	128	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	150	127	151	138	63	151	128	55	144	68	49	134	59	43
			Exposed	151	151	151	151	151	151	151	151	150	151	151	141	151	151	133	151	149	126	151	141	70	151	128	56	142	65	48	131	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	147	132	151	136	77	151	126	59	146	63	52			
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	143	151	151	136	151	136	84	151	125	58	143	61	50	133	53	44	125	47	39	84	42	34
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	142	152	140	152	142	130	152	133	101	145	126	63
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	143	131	152	132	88	142	123	60	131	69	53	65	59	46	58	52	41
	C	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	142	150	150	135	150	147	129	150	141	124	150	130	70	141	113	57	132	77	50	124	61	43	89	54	38	66	48	51
			Exposed	150	150	135	150	145	128	150	138	108	150	132	75	147	126	62	140	108	57	134	85	52	124	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	145	151	151	137	151	151	130	151	146	124	151	132	59	147	85	51	135	59	44	125	52	38	62	46	51	55	41	45
			Exposed	151	151	137	151	151	128	151	142	75	151	134	61	151	127	55	146	78	50	139	62	46	126	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	151	140	151	141	127	151	129	61	147	64	53	137	56	46	129	49	41	106	44	36
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	D	0-7	Interior	150	150	150	150	150	144	150	150	137	150	147	130	150	141	124	150	135	89	150	129	67	139	104	56	129	71	48	111	58	41	77	51	36	62	45	48	55	40	43
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		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
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		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
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			Exposed	138	138	138	138	138	136	82	138	129	61	138	75	55	138	61	50	137	56	46	126	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30			
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	140	143	143	134	143	134	114	142	124	61	131	71	53	65	58	46	58	52	41	51	46	36
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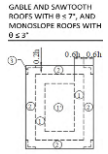
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

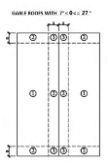
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

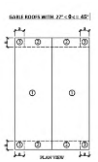
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

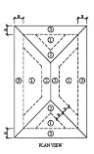












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

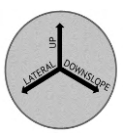
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

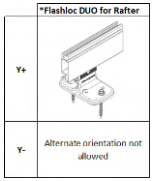
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	63	118	118	101	55	118	75	49
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	103	118	118	63	118	96	54	118	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	63	119	119	68	49	119	59	43
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	70	119	119	56	119	65	48	119	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	77	128	128	126	59	128	63	52
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	84	128	125	58	128	61	50	128	53	44	125	47	39	84	42	34
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	101	124	124	63		
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	123	60	124	69	53	65	59	46	58	52	41
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	70	118	113	57	118	77	50	118	61	43	89	54	38	66	48	51
			Exposed	118	118	118	118	118	118	118	108	118	118	75	118	118	62	118	108	57	118	85	52	118	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	59	119	85	51	119	59	44	119	52	38	62	46	51	55	41	45
			Exposed	119	119	119	119	119	119	119	75	119	119	61	119	119	55	119	78	50	119	62	46	119	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30	
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	127	128	128	61	128	64	53	128	56	46	128	49	41	106	44	36
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	72	128	128	60	128	75	55	128	57	47	127	48	40	88	42	35	63	37	46	55	49	41	49	43	36	
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	64	124	83	56	124	62	49	61	55	44
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	70	124	87	56	124	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	89	118	118	67	118	104	56	118	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	118	118	118	118	118	82	118	118	63	118	111	57	118	85	52	118	69	47	118	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	64	119	119	58	119	72	49	119	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	119	119	119	119	119	62	119	119	56	119	82	50	119	62	46	119	56	42	119	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	126	130	127	60	130	53	44	125	47	39	82	41	34	62	37	46			
			Exposed	130	130	130	130	130	130	130	130	82	130	129	61	130	75	55	130	61	50	130	56	46	126	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	114	129	104	61	129	71	53	65	58	46	58	52	41	51	46	36
			Exposed	129	129	129	129	129	129	129	129	129	129	129	124	129	129	70	129	123	60	129	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	63	115	115	101	55	115	75	49
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	103	115	115	63	115	96	54	115	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	63	116	116	68	49	116	59	43
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		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	77	114*	114*	59	114*	63	52			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	84	114*	114*	58	114*	61	50	114*	53	44	114*	47	39	84	42	34
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	63	
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	88	110*	110*	60	110*	69	53	65	59	46	58	52	41			
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	70	115	113	57	115	77	50	115	61	43	89	54	38	66	48	51
			Exposed	115	115	115	115	115	115	115	108	115	115	75	115	115	62	115	108	57	115	85	52	115	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	59	116	85	51	116	59	44	116	52	38	62	46	51	55	41	45
			Exposed	116	116	116	116	116	116	116	75	116	116	61	116	116	55	116	78	50	116	62	46	116	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30	
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	64	114*	114*	53	114*	49	41	106	44	36
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			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	88	110*	110*	60	110*	69	53	65	59	46	58	52	41			
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	89	118	118	67	118	104	56	118	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	118	118	118	118	118	82	118	118	63	118	111	57	118	85	52	118	69	47	118	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	64	119	119	58	119	72	49	119	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	119	119	119	119	119	62	119	119	56	119	82	50	119	62	46	119	56	42	119	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	60	119	62	51	119	53	44	119	47	39	82	41	34	62	37	46
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		27-45	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	61	115	71	53	65	58	46	58	52	41	51	46	36
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50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	88	108	108	63	108	101	55	108	75	49
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		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	63	113*	113*	55	113*	68	49	113*	59	43
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	70	113*	113*	56	113*	65	48	113*	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	77	103*	103*	59	103*	63	52			
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	84	103*	103*	58	103*	61	50	103*	53	44	103*	47	39	84	42	34
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	63	
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	90*	100*	100*	60	100*	69	53	65	59	46	58	52	41
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	70	108	108	57	108	77	50	108	61	43	89	54	38	66	48	51
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		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	59	113*	85	51	113*	59	44	113*	52	38	62	46	51	55	41	45
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		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	64	103*	103*	53	103*	49	41	103*	44	36
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		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	63	
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	63	
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	89	112	112	67	112	104	56	112	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	112	112	112	112	112	82	112	112	63	112	111	57	112	85	52	112	69	47	112	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	64	113	113	58	113	72	49	113	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	113	113	113	113	113	62	113	113	56	113	82	50	113	62	46	113	56	42	113	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	60	108*	62	51	108*	53	44	108*	47	39	82	41	34	62	37	46
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	82	108*	108*	61	108*	75	55	108*	61	50	108*	56	46	108*	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	63	
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	70	105*	105*	60	105*	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36

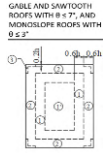
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

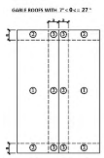
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

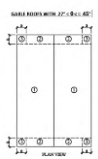
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

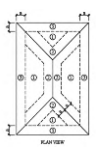












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

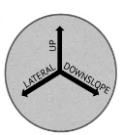
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

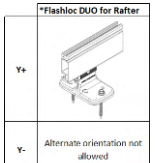
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	63	99	99	55	99	75	49			
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	63	99	96	54	99	68	47	99	58	41	77	51	36	62	45	49
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	59	43
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	70	105*	105*	56	105*	65	48	105*	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	77	93*	93*	59	93*	63	52
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	84*	93*	93*	58	93*	61	50	93*	53	44	93*	47	39	84*	42	34
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	63
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	69	53	65	59	46	58	52	41
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	70	99	99	57	99	77	50	99	61	43	89	54	38	66	48	51
			Exposed	99	99	99	99	99	99	99	99	99	99	75	99	99	62	99	99	57	99	85	52	99	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	59	105*	85	51	105*	59	44	105*	52	38	62	46	51	55	41	45
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	75	105*	105*	61	105*	105*	55	105*	78	50	105*	62	46	105*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	61	93*	64	53	93*	56	46	93*	49	41	93*	44	36			
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	72	93*	93*	60	93*	75	55	93*	57	47	93*	48	40	88*	42	35	63	37	49	41	49	43	36					
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	64	88*	83*	56	88*	62	49	61	55	44						
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	70	88*	87*	56	88*	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	89	104	104	67	104	104	56	104	71	48	104	58	41	77	51	36	62	45	48	55	40	43
			Exposed	104	104	104	104	104	82	104	104	63	104	104	57	104	85	52	104	69	47	104	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	64	110*	110*	58	110*	72	49	110*	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	110*	110*	110*	110*	110*	62	110*	110*	56	110*	82	50	110*	62	46	110*	56	42	110*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	60	100*	62	51	100*	53	44	100*	47	39	82	41	34	62	37	46
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	82	100*	100*	61	100*	75	55	100*	61	50	100*	56	46	100*	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	61	96*	71	53	65	58	46	58	52	41	51	46	36
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	70	96*	96*	60	96*	83*	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	63	92	92	55	92	75	49
			Exposed	92	92	92	92	92	92	92	92	92	92	92	75	92	92	62	92	92	57	92	85	52	92	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	63	97*	97*	55	97*	68	49	97*	59	43
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	56	97*	65	48	97*	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	77*	81*	81*	59	81*	63	52			
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	61	50	81*	64	53	81*	47	39	81*	42	34
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	63
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	60	76*	76*	69*	53	67*	59	46	58	52	41
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	70	92	92	57	92	77	50	92	61	43	89	54	38	66	48	51
			Exposed	92	92	92	92	92	92	92	92	92	92	92	75	92	92	62	92	92	57	92	85	52	92	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	59	97*	85*	51	97*	59	44	97*	52	38	62	46	51	55	41	45
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	75	97*	97*	61	97*	97*	55	97*	78	50	97*	62	46	97*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	64	53	81*	56	46	81*	49	41	81*	44	36
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	72*	81*	81*	60	81*	75*	55	81*	57	47	81*	48	40	81*	42	35	63	37	46	55	49	41	49	43	36
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	63
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	70*	76*	76*	56	76*	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	89	97	97	67	97	97	56	97	71	48	97	58	41	77	51	36	62	45	48	55	40	43
			Exposed	97	97	97	97	97	82	97	97	63	97	97	57	97	85	52	97	69	47	97	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	64	102*	102*	58	102*	72	49	102*	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	102*	102*	102*	102*	102*	62	102*	102*	56	102*	82	50	102*	62	46	102*	56	42	102*	52	38	60	44	49	36	39	43	32	34	38	28	46	34	25					
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	60	89*	62	51	89*	53	44	89*	47	39	82*	41	34
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	82*	89*	89*	61	89*	75	55	89*	61	50	89*	56	46	89*	47	39	77*	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	61	84*	72*	53	65	58	46	58	52	41
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	82*	55	72*	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	63	87	87	55	87	75	49
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	63	87	87	54	87	68	47	87	63	41	77	51	36	62	45	49
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	63	86*	86*	55	86*	68	49	86*	59	43
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	70	86*	86*	56	86*	65	48	86*	56	42	76*	49	36	59	43	48	52	38	43
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	59	71*	63	52			
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	58	71*	61*	50	71*	53	44	71*	47	39	71*	42	34
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60*	68*	68*	53	65*	59*	46	58*	52	41
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	70	87	87	57	87	77	50	87	61	43	87	54	38	66	48	51
			Exposed	87	87	87	87	87	87	87	87	87	87	87	75	87	87	62	87	87	57	87	85	52	87	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	59	86*	85*	51	86*	59	44	86*	52	38	62	46	51	55	41	45
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	75*	86*	86*	61	86*	86*	55	86*	78*	50	86*	62	46	86*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	61*	71*	64*	53	71*	56	46	71*	49	41
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	60	71*	71*	47	71*	48	40	71*	42	35	63*	37	46	55	49	41	49	43	36
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	64*	68*	68*	64*	68*	68*	56	68*	62*	49	61*	55	44
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	59*	53	42	51	46	37	45	41	49	40	36	43				
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	67	91	91	56	91	71	48	91	58	41	77	51	36	62	45	48	55	40	43
			Exposed	91	91	91	91	91	82	91	91	63	91	91	57	91	85	52	91	69	47	91	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	64	95*	95*	58	95*	72	49	95*	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	95*	95*	95*	95*	95*	62	95*	95*	56	95*	82*	50	95*	62	46	95*	56	42	95*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	60	78*	62	51	78*	53	44	78*	47	39	78*	41	34	62	37	46
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	61	78*	75*	55	78*	61	50	78*	61	50	78*	56	46	78*	47	39	77*	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	61	74*	71	53	66*	58	46	58	52	41	51	46	36
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	70*	74*	74*	60	74*	74*	55	70*	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36

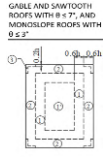
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

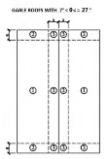
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

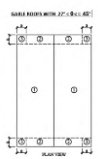
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

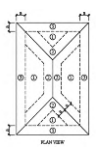












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

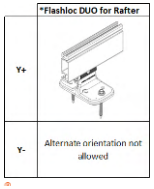
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	63	82	82	55	82	75	49			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	63	82	82	54	82	68	47	82	58	41	77	51	36	62	45	49
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	63	77*	77*	55	77*	68*	49	77*	59	43			
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	70*	77*	77*	56	77*	65	48	77*	56	42	76*	49	36	59	43	48	52	38	43
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	59*	64*	63*	52			
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	58*	64*	61*	50	64*	53	44	64*	47	39	64*	42	34
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	63
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	70	82	82	57	82	77	50	82	61	43	82	54	38	66	48	51
			Exposed	82	82	82	82	82	82	82	82	82	82	82	75	82	82	62	82	82	57	82	82	52	82	62	44	82	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	59	77*	77*	51	77*	59	44	77*	52	38	62	46	51	55	41	45
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	75*	77*	77*	61	77*	77*	55	77*	77*	50	77*	62	46	77*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	53	64*	56*	46	64*	49	41	64*	44	36
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	64*	55*	64*	57*	47	64*	48	40	64*	42	35	63*	37	46	55*	49	41	49	43	36
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	68
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	63	91*	81*	55	91*	62	49	61	55	43
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	67	86	86	56	86	71	48	86	58	41	77	51	36	62	45	48	55	40	43
			Exposed	86	86	86	86	86	82	86	86	63	86	86	57	86	85	52	86	69	47	86	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	64	85*	85*	58	85*	72	49	85*	57	42	80*	49	37	59	43	48	52	38	43	46	51	38
			Exposed	85*	85*	85*	85*	85*	62	85*	85*	56	85*	82*	50	85*	62	46	85*	56	42	85*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	60	70*	62*	51	70*	53	44	70*	47	39	70*	41	34	62*	37	46
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	55	70*	61*	50	70*	56	46	70*	47	39	70*	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	53	65*	59*	46	58*	52	41	51	46	36			
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	67*	55	67*	59*	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	63	78	78	55	78	75	49			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	63	78	78	54	78	68	47	78	58	41	77	51	36	62	45	49
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	63*	70*	70*	55	70*	68*	49	70*	59	43
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	56	70*	65*	48	70*	56	42	70*	49	36	59	43	48	52	38	43
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	71	86*	86*	58	86*	63	52
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	62
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	70	78	78	57	78	77	50	78	61	43	78	54	38	66	48	51
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	62	78	78	57	78	78	52	78	62	44	78	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	59	70*	70*	51	70*	59	44	70*	52	38	62*	46	51	55	41	45
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	55	70*	70*	50	70*	62*	46	70*	52	39	61*	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	62	86*	70	55
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	61	86*	63	53	86*	55	46	86*	49	41	86*	44	36
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	67
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	63	82*	80*	55	82*	61	49	61	55	43
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	67	82	82	56	82	71	48	82	58	41	77	51	36	62	45	48	55	40	43
			Exposed	82	82	82	82	82	82	82	82	63	82	82	57	82	82	52	82	69	47	82	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	64	77*	77*	58	77*	72*	49	77*	57	42	77*	49	37	59	43	48	52	38	43	46	51	38
			Exposed	77*	77*	77*	77*	77*	62	77*	77*	56	77*	77*	50	77*	62	46	77*	56	42	77*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	62*	51	64*	53	44	64*	47	39	64*	41	34
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	55*	64*	61*	50	64*	56*	46	64*	47	39	64*	40	51	60*	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	55
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	61	91*	69	53	65	58	46	57	51	41	51	46	36

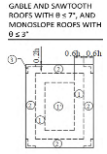
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

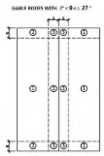
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

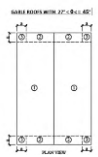
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

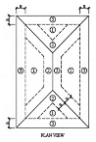












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

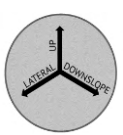
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

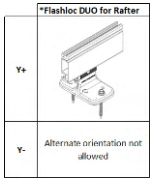
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	102	120	120	86	120	120	74	120	92	56	120	73	44	96	58	36	77	48	31	64	40	27	53	34	24
			Exposed	120	120	101	120	120	83	120	113	69	120	96	59	120	82	50	119	71	44	103	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	120	120	120	120	120	120	120	120	120	120	120	119	120	120	95	120	120	78	120	120	66	120	84	48	120	62	37	89	48	31	68	38	27	53	33	24	43	29	21
			Exposed	120	120	94	120	120	74	120	110	60	120	88	50	120	73	42	120	61	36	98	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	100	121	121	100	121	103	70	121	74	52	121	56	40	104	44	33	83	35	29	68	31	26
			Exposed	121	121	121	121	121	117	121	121	91	121	109	73	121	88	60	121	72	50	121	61	43	106	45	34	80	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	92	121	99	69	116	77	54	84	61	43	65	50	35	52	41	31
			Exposed	121	121	121	121	121	121	121	121	119	121	121	96	121	114	80	121	96	67	121	82	58	86	62	43	63	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	120	120	112	120	120	91	120	120	76	120	105	64	120	90	55	120	77	47	113	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	120	89	54	120	75	46	105	63	39	89	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	120	120	107	120	120	83	120	120	67	120	99	55	120	81	47	120	68	40	111	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	120	80	46	120	65	38	101	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14
		20-27	Interior	121	121	121	121	121	121	121	121	103	121	121	82	121	99	67	121	81	56	121	67	47	118	49	35	88	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	121	98	66	121	77	53	121	62	44	121	51	37	102	43	33	87	37	30	74	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	108	121	121	89	121	107	74	121	91	63	98	68	48	70	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	121	121	88	121	102	71	121	84	59	103	71	50	83	60	42	68	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	120	120	81	120	110	67	120	92	56	120	78	48	113	68	41	97	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	112	67	41	93	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	120	120	72	120	105	58	120	84	48	120	69	40	111	57	35	90	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	110	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	121	121	113	121	121	87	121	103	69	121	82	57	121	67	47	121	56	40	114	48	35	84	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	121	67	47	121	54	39	105	44	33	88	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	121	121	121	121	121	114	121	121	92	121	108	76	121	91	63	117	77	54	94	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	121	90	63	110	74	52	86	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	102	111	111	86	111	111	74	111	92	56	111	73	44	96	58	36	77	48	31	64	40	27	53	34	24
			Exposed	111	111	101	111	111	83	111	111	69	111	96	59	111	82	50	111	71	44	103	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	95	112	112	78	112	112	66	112	84	48	112	62	37	89	48	31	68	38	27	53	33	24	43	29	21
			Exposed	112	112	94	112	112	74	112	110	60	112	88	50	112	73	42	112	61	36	98	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	100	117	103	70	117	74	52	117	56	40	104	44	33	83	35	29	68	31	26
			Exposed	117	117	117	117	117	117	117	117	91	117	109	73	117	88	60	117	72	50	117	61	43	106	45	34	80	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	92	120	99	69	116	77	54	84	61	43	65	50	35	52	41	31
			Exposed	120	120	120	120	120	120	120	120	119	120	120	96	120	114	80	120	96	67	120	82	58	86	62	43	63	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	111	111	111	111	111	91	111	111	76	111	105	64	111	90	55	111	77	47	111	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	111	89	54	111	75	46	105	63	39	89	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	112	112	107	112	112	83	112	112	67	112	99	55	112	81	47	112	68	40	111	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	112	80	46	112	65	38	101	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	18	20	22	17	27	20	15
		20-27	Interior	117	117	117	117	117	117	117	117	103	117	117	82	117	99	67	117	81	56	117	67	47	117	49	35	88	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	117	98	66	117	77	53	117	62	44	117	51	37	102	43	33	87	37	30	74	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	108	120	120	89	120	107	74	120	91	63	98	68	48	70	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	120	120	88	120	102	71	120	84	59	103	71	50	83	60	42	68	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	111	111	81	111	110	67	111	92	56	111	78	48	111	68	41	97	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	111	67	41	93	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	112	112	72	112	105	58	112	84	48	112	69	40	111	57	35	90	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	110	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	121	121	113	121	121	87	121	103	69	121	82	57	121	67	47	121	56	40	114	48	35	84	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	121	67	47	121	54	39	105	44	33	88	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	121	121	121	121	121	114	121	121	92	121	108	76	121	91	63	117	77	54	94	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	121	90	63	110	74	52	86	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	86	96	96	74	96	92	56	96	73	44	96	58	36	77	48	31	64	40	27	53	34	24			
			Exposed	96	96	96	96	96	83	96	96	69	96	96	59	96	82	50	96	96	71	44	96	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	95	96	96	78	96	96	66	96	84	48	96	62	37	89	48	31	68	38	27	53	33	24	43	29	21
			Exposed	96	96	94	96	96	74	96	96	60	96	88	50	96	73	42	96	61	36	96	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	100	108*	103*	70	108*	74	52	108*	56	40	104*	44	33	83	35	29	68	31	26
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	91	108*	108*	73	108*	88	60	108*	72	50	108*	61	43	106*	45	34	80	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	93*	103*	99*	69	103*	77	54	84	61	43	65	50	35	52	41	31
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96*	103*	103*	80	103*	96*	67	103*	82	58	86	62	43	63	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	96	96	96	96	96	91	96	96	76	96	96	64	96	90	55	96	77	47	96	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	96	89	54	96	75	46	96	63	39	89	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	96	96	96	96	96	96	96	96	67	96	96	55	96	81	47	96	68	40	96	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	96	80	46	96	65	38	96	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	103*	108*	108*	82	108*	99	67	108*	81	56	108*	67	47	108*	49	35	88	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	108*	98	66	108*	77	53	108*	62	44	108*	51	37	102*	43	33	87	37	30	74	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	89	103*	103*	74	103*	91	63	98*	68	48	70	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	103*	103*	88	103*	102*	71	103*	84	59	103*	71	50	83	60	42	68	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	96	96	81	96	96	67	96	92	56	96	78	48	96	68	41	96	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	96	67	41	93	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	96	96	72	96	96	58	96	84	48	96	69	40	96	57	35	90	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	96	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	111*	111*	111*	111*	111*	87	111*	103	69	111*	82	57	111*	67	47	111*	56	40	111*	48	35	84	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	111*	67	47	111*	54	39	105	44	33	88	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	92	107*	107*	76	107*	91	63	107*	77	54	94	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	107*	90	63	107*	74	52	86	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18

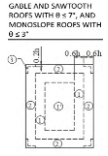
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

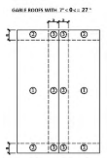
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

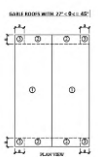
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

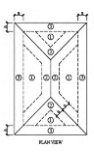












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

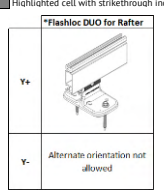
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	74	86	86	56	86	73	44	86	58	36	77	48	31	64	40	27	53	34	24
			Exposed	86	86	86	86	86	83	86	86	69	86	86	59	86	82	50	86	71	44	86	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	78	94*	94*	66	94*	84	48	94*	62	37	86	48	31	68	38	27	53	33	24	43	29	21
			Exposed	94*	94*	94*	94*	94*	74	94*	94*	60	94*	86	50	94*	73	42	94*	61	36	94*	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	70	86*	74*	52	86*	56	40	86*	44	33	83*	35	29	68	31	26
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	73	86*	86*	60	86*	72	50	86*	61	43	86*	45	34	80*	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	70*	80*	77*	54	80*	61	43	65	50	35	52	41	31
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
	C	0-7	Interior	86	86	86	86	86	86	86	86	76	86	86	64	86	86	55	86	77	47	86	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	86	86	54	86	75	46	86	63	39	86	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	94*	94*	94*	94*	94*	83	94*	94*	67	94*	94*	55	94*	81	47	94*	68	40	94*	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	94*	80	46	94*	65	38	94*	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	82*	86*	86*	67	86*	81*	56	86*	67	47	86*	49	35	86*	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	86*	86*	66	86*	77*	53	86*	62	44	86*	51	37	86*	43	33	86*	37	30	74*	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	30	24	22	18
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	74*	80*	80*	63	80*	69*	48	70*	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	80*	80*	80*	80*	80*	72*	80*	80*	59	80*	71*	50	80*	60	42	69*	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	86	86	81	86	86	67	86	86	56	86	78	48	86	68	41	86	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	86	67	41	86	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	86	86	72	86	86	58	86	84	48	86	69	40	86	57	35	86	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	86	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	94*	94*	94*	94*	94*	87*	94*	94*	69	94*	82*	57	94*	67	47	94*	56	40	94*	48	35	84*	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	94*	67	47	94*	54	39	94*	44	33	88*	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	76*	86*	86*	63	86*	78*	54	86*	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	86*	86*	63	86*	75*	52	86*	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	74	83	83	56	83	73	44	77	48	31	64	40	27	53	34	24	43	29	21
			Exposed	83	83	54	83	75	46	83	63	39	83	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	78*	82*	82*	66	82*	82*	48	82*	62	37	82*	48	31	68	38	27	53	33	24	43	29	21
			Exposed	82*	82*	82*	82*	82*	74*	82*	82*	60	82*	82*	50	82*	73*	42	82*	61	36	82*	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	52	67*	56	40	67*	44	33	67*	35	29	67*	31	26
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	50	67*	61*	43	67*	45	34	67*	35	29	63*	30	25	51	26	22	42	23	29
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	54*	63*	61*	43	63*	50	35	52	41	31
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	43	63*	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	83	83	83	83	83	83	83	83	76	83	83	64	83	83	55	83	77	47	83	68	41	83	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	83	83	54	83	75	46	83	63	39	83	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	67	82*	82*	55	82*	81*	47	82*	68	40	82*	57	35	77*	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	82*	80*	46	82*	65	38	82*	53	33	81*	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	56	67*	67*	47	67*	49	35	67*	38	30	67*	32	26	55	28	23	45	24	20	38	22	27
			Exposed	67*	67*	66*	67*	67*	53	67*	62*	44	67*	51	37	67*	43	33	67*	37	30	67*	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	30	24	22	18
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	48	63*	54*	37	54*	42	32	42	35	28	34	31	24	30	27	22
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	59*	63*	63*	50	63*	60*	42	63*	52	36	58*	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	85	85	81	85	85	67	85	85	56	85	78	48	85	68	41	85	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	85	67	41	85	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	89*	89*	72	89*	89*	58	89*	84*	48	89*	69	40	89*	57	35	89*	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	89*	57	35	85*	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	69*	73*	73*	57	73*	67*	47	73*	56	40	73*	48	35	73*	36	30	65*	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	73*	67*	47	73*	54	39	73*	44	33	73*	37	30	73*	33	27	64*	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	63*	69*	69*	54	69*	66*	46	66*	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	69*	69*	63*	69*	69*	52	69*	62*	43	69*	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	56	77	73	44	77	58	36	77	48	31	64	40	27	53	34	24
			Exposed	77	77	77	77	77	77	77	77	69	77	77	59	77	77	50	77	71	44	77	62	38	77	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	48	67*	62*	37	67*	48	31	67*	38	27	53	33	24	43	29	21
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	50	67*	67*	42	67*	61*	36	67*	52	33	67*	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	55*	40	55*	44	33	55*	35	29	55*	31	26
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	55*	55*	43	55*	45	34	55*	35	29	55*	30	25	51*	26	22	42	23	29	35	21	26
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43	52*	50*	35	52*	41	31
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43	52*	49*	34	48*	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	77	77	77	77	77	77	77	77	76	77	77	64	77	77	55	77	77	47	77	68	41	77	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	77	77	54	77	75	46	77	63	39	77	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	55	67*	67*	47	67*	67*	40	67*	57*	35	67*	43	29	57*	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	67*	67*	46	67*	65*	38	67*	53	33	67*	44	30	66*	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47	55*	49*	35	55*	38	30	55*	32	26	55*	28	23	45	24	20	38	22	27
			Exposed	55*	55*	55*	55*	55*	53*	55*	55*	44	55*	51*	37	55*	43	33	55*	37	30	55*	33	27	55*	28	23	44	24	30	36	21	26	31	27	23	27	24	30	24	22	18
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	37	52*	42	32	42	35	28	34	31	24	30	27	22
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	52*	42	52*	52*	36	52*	46*	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	80	80	80	80	80	67	80	80	56	80	78	48	80	68	41	80	59	36	80	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	80	67	41	80	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	73*	73*	72*	73*	73*	58	73*	73*	48	73*	69*	40	73*	57	35	73*	49	32	73*	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	73*	57	35	73*	47	31	69*	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	57*	60*	60*	47	60*	56*	40	60*	48	35	60*	36	30	60*	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	60*	60*	47	60*	54*	39	60*	44	33	60*	37	30	60*	33	27	60*	30	25	55*	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	57*	46	57*	51*	35	50*	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	57*	57*	57*	57*	57*	52*	57*	57*	43	57*	53*	37	57*	45	33	49*	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18

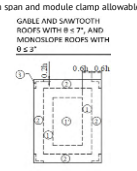
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

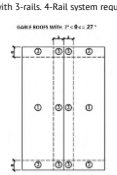
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

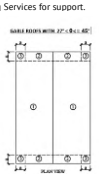
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

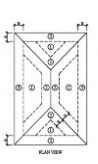












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

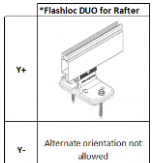
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	56	68	68	48	68	64	40	27	53	34	24						
			Exposed	68	68	68	68	68	68	68	68	68	68	68	59	68	68	50	68	68	44	68	62	38	68	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24		
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	48	56*	56*	38	56*	48	31	56*	38	27	53*	33	24	43	29	21		
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	56*	42	56*	56*	36	56*	52*	33	56*	39	28	51*	32	24	40	28	21	33	24	27	29	21	24	26	29	21		
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	40*	47*	44*	33	47*	35	29	47*	31	26		
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	45*	34	47*	35	29	47*	30	25	47*	26	22	42*	23	29	35	21	26		
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	35	44*	42*	31		
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	39*	30	38*	33	26	32	29	23	29	26	20		
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	64	68	68	55	68	68	47	68	68	41	68	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25		
			Exposed	68	68	54	68	68	46	68	63	39	68	55	34	68	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17		
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	55*	56*	56*	47	56*	56*	40	56*	56*	35	56*	43	29	56*	34	25	44	29	22	35	26	29	31	23	25	27	20	22		
			Exposed	56*	56*	46	56*	56*	38	56*	53*	33	56*	44	30	56*	38	27	56*	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15		
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	35	47*	38	30	47*	32	26	47*	28	23	45*	24	20	38	22	27		
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	37	47*	43*	33	47*	37	30	47*	33	27	47*	28	23	44*	24	30	36	21	26	31	27	23	27	24	20	24	22	18		
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37	44*	42*	32	42*	35	28	34	31	24	30	27	22		
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	42*	44*	44*	36	44*	44*	33	42*	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21		
	D	0-7	Interior	74	74	74	74	74	67	74	74	56	74	74	48	74	68	41	74	59	36	74	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21		
			Exposed	74	67	41	74	57	35	74	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	19	30	22	16	27	20	14		
		7-20	Interior	62*	62*	62*	62*	62*	58*	62*	62*	48	62*	62*	40	62*	57*	35	62*	49	32	62*	42	29	54*	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19		
			Exposed	62*	57*	35	62*	47	31	62*	39	28	56*	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12		
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	47*	51*	51*	40	51*	48*	35	51*	36	30	51*	31	25	51*	26	22	42	23	29	35	20	25	31	27	23		
			Exposed	51*	51*	47*	51*	51*	39	51*	44*	33	51*	37	30	51*	33	27	51*	30	25	51*	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15		
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	35	48*	40	30	38	33	26	32	29	23	29	26	20	25	23	27		
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	37	48*	45*	33	48*	39	30	42*	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18		
70	B	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	44	59	58	36	59	56	40	27	53	34	24						
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	44	59	49	31	59	39	27	50	33	23	41	29	20	35	25	27	31	22	24		
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	37	49*	48*	31	49*	38	27	49*	33	24	43*	29	21		
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	42*	49*	49*	36	49*	49*	33	49*	39	28	49*	32	24	40	28	21	33	24	27	29	21	24	26	29	21		
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33	40*	35*	29	40*	31	26		
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	34	40*	35*	29	40*	30	25	40*	26	22	40*	25	29	35*	21	26		
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	31		
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	38*	30	38*	38*	33*	38*	29	23	29	26	20		
	C	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	55	59	59	47	59	59	41	59	53	33	59	42	28	54	35	25	45	30	21	37	27	29	33	24	25		
			Exposed	59	59	54	59	59	46	59	59	39	59	55	34	59	47	31	59	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17		
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	40	49*	49*	35	49*	43*	29	49*	34	25	44*	29	22	35	26	29	31	23	25	27	20	22		
			Exposed	49*	49*	46*	49*	49*	38	49*	49*	33	49*	44*	30	49*	38	27	49*	34	25	47*	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15		
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	38*	30	40*	32	26	40*	28	23	40*	24	20	38*	22	27		
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*	40*	40*	33	40*	37*	30	40*	33	27	40*	28	23	40*	24	30	36*	21	26	31	27	23	27	24	20	24	22	18		
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	33*	38*	38*	35*	28	34*	31	24	30	27	22	
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	29	26	21	25	23	27	22	20	24	20	27	21		
	D	0-7	Interior	65	65	65	65	65	65	65	65	56	65	65	48	65	65	41	65	59	36	65	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21		
			Exposed	65	65	41	65	57	35	65	49	31	65	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	19	30	22	16	27	20	14		
		7-20	Interior	54*	54*	54*	54*	54*	54*	54*	54*	48*	54*	54*	40	54*	54*	35	54*	49*	32	54*	42	29	54*	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19		
			Exposed	54*	54*	35	54*	47*	31	54*	39	28	54*	34	25	47*	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12		
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	45*	35	45*	36	30	45*	31	25	45*	26	22	42*	23	29	34	20	25	30	22	26		
			Exposed	45*	45*	45*	45*	45*	39*	45*	44*	33	45*	37	30	45*	33	27	45*	30	25	45*	28	23	42*	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15		
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	40*	30	38*	33	26	32	29	23	29	26	20	25	23	27		
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	37*	42*	42*	42*	42*	39*	30	41*	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18		
80	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	44	52	52	36	52	48	31	52	40	27	52	34	24					
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	44	52	52	38	52	49	31	52	39	27	50	33	23	41	29	20	35	25	27	31	22	24			
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	43*	31	43*	38*	27	43*	33	24	43*	29	21		
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	36	43*	43*	33	43*	39*	28	43*	32	24	40*	28	21	33	24	27	29	21	24	26	29	21			
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47*	39					
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	51*	54*	52*	43	54*	45	38	54*	40	33	54*	35	29	53*	31	26		
		27-45	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	47*			
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45*	51*	50*	39	49*	44*	35	44*	39	31					
	C	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	41	52	52	33	52	42	28	52	35	25	45	30	21	37	27	29	33	24	25		
			Exposed	52	52	52	52	52	46	52	52	39	52	52	34	52	47	31	52	42	28	52	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17		
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	35	43*	43*	29	43*	34	25	43*	29	22	35	26	29	31	23	25	27	20	22		
			Exposed	43*	43*	43*	43*	43*	38*	43*	43*	33	43*	43*	30	43*	38*	27	43*	34	25	43*	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15		
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	46*	54*	48*	40	54*	42	35	54*	37	31	54*	33	27		
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	50*	54*	54*	45	54*	50*	41	54*	42	35	54*	36	30	54*	31	26	47*	28	23	41	24	20	37	22	18					
		27-45	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	42	51*	51*	42	51*	48*	40	54*	42	35	54*	37	31	54*	33
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	42	51*	51*	42	51*	51*	42	51*	48*	40	54*	42	35	54*	37	31	54*	33
	D	0-7	Interior	57	57	57	57	57	57	57	57	56	57	57	48	57	57	41	57	57	36	57	52	33	57	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21		
			Exposed	57	57	41	57	57	35	57	49	31	57	42	28	57	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	19	30	22	16	27	20	14		
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	48*	35	48*	48*	32	48*	42*	29	48*	33	24	41*	28	21	34	24	27	29	21	24	26	28	21	23	25	19		
			Exposed	48*	48*	35	48*	47*	31	48*	39	28	48*	34	25	47*	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12		
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	36*	30	39*	31	25	39*	26	22	39*	23	29	35*	20	25	31	27	23		
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	33	39*	37*	30	39*	33	27	39*	30	25	39*	28	23	39*	23	29	34*	20	25	30	26	22	26	23	19	23	20	17	20	18	15		
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	36*	37*	37*	30	37*	33	26	33*	29	23	29	26	20	25	23	27		
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	37*	30	37*	35*	27	33*	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18		

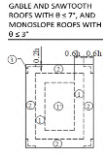
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

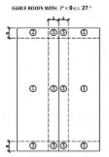
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

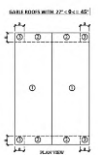
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

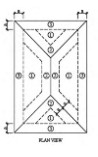












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

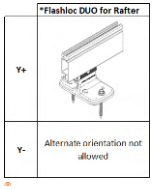
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	46	31	46	40	27	46	34	24						
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	31	46	39	27	46	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	31	38*	38*	27	38*	38*	27	38*	33	24	38*	29	21			
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	36*	38*	38*	33	38*	38*	28	38*	32	24	38*	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	47*	39			
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	45*	38	48*	40	33	48*	35	29	48*	31	26
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*			
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	40*	46*	44*	35	43*	39	31
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	33	46	42	28	46	35	25	45	30	21	37	27	29	33	24	25
			Exposed	46	46	46	46	46	46	46	46	39	46	46	34	46	46	31	46	42	28	46	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	29	38*	34*	25	38*	29	22	35*	26	29	31	23	25	27	20	22
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	33	38*	38*	30	38*	38*	27	38*	34*	25	38*	31	23	36*	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	40	48*	42*	35	48*	37	31	48*	33	27
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41	48*	42*	35	48*	36	30	48*	31	26	47*	28	23	41	24	20	37	22	18
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	37	46*	41*	33			
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	45*	36	44*	40*	31	38	35	27	34	30	24	30	27	21
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	51	51	36	51	51	33	51	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	51	51	41	51	51	35	51	49	31	51	42	28	51	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	35	42*	42*	29	42*	42*	29	42*	33	24	41*	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	42*	42*	35	42*	42*	31	42*	39*	28	42*	34	25	42*	31	23	40*	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	45	53*	46*	38	53*	40	33	53*	35	29	53*	31	26	47*	27	23
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	46*	53*	50*	41	53*	46*	38	53*	42	35	53*	35	29	52*	30	25	45	26	22	39	23	19	34	20	17	31	18	15
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	40	50*	50*	46*	50*	50*	40	49*	44*	35	43	39	31	38	34	27
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	45*	50*	50*	41	49*	44*	35	42	38	30	37	33	26	32	29	23	28	25	20	25	23	18
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	31	42	42	31	42	42	31	42	40	27	42	34	24			
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	31	42	39	27	42	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	47*	52*	52*	41	52*	49*	37	52*	44	32
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42	52*	49*	36	52*	42	31	50*	37	27	44	32	24	39	29	21
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	38*	43*	40*	33	43*	35	29	43*	31	26
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	35	41*	41*	31	41*	39*	31
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	33	42	42	28	42	35	25	42	30	21	37	27	29	33	24	25
			Exposed	42	42	42	42	42	42	42	42	39	42	42	34	42	42	31	42	42	28	42	37	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	52*	38	52*	44	33	52*	39	29	47*	34	25	41	30	22
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	52*	45*	52*	52*	41	52*	51*	37	52*	46*	34	52*	39	29	46*	34	25	40	29	22	35	25	19	31	22	17	27	20	15
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	42*	35	43*	37	31	43*	33	27
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	42*	35	43*	36	30	43*	31	26	43*	28	23	41*	24	20	37	22	18
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	33			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36*	41*	39*	31	39*	35	27	34	30	24	30	27	21
	D	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	46	33	46	41	28	46	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	46	46	41	46	46	35	46	46	31	46	42	28	46	37	26	46	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	32	38*	38*	29	38*	33	24	38*	28	21	34*	24	27	29	21	24	26	28	21	23	25	19
			Exposed	38*	38*	35*	38*	38*	31	38*	38*	28	38*	34*	25	38*	31	23	38*	28	21	35*	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	13
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	46*	38	48*	40	33	48*	35	29	48*	31	26	47*	27	23
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	41	48*	46*	38	48*	42*	35	48*	35	29	48*	30	25	45*	26	22	39	23	19	34	20	17	31	18	15
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	44*	35	43*	39	31	38	34	27
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	42*	46*	44*	35	42*	38	30	37	33	26	32	29	23	28	25	20	25	23	18

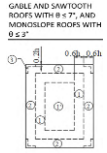
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

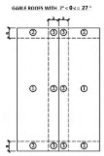
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

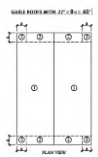
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

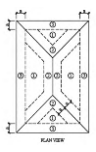












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

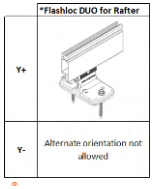
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	147	149	149	135	149	142	125	149	133	81	146	125	61	137	95	54	130	71	48
			Exposed	149	149	149	149	149	149	149	149	144	149	149	137	149	148	130	149	142	125	149	136	94	146	126	62	136	91	53	127	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	137	149	148	126	149	136	62	149	126	54	142	64	48	133	57	42
			Exposed	149	149	149	149	149	149	149	149	148	149	149	139	149	149	131	149	147	125	149	139	65	149	127	55	141	63	47	129	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	145	131	150	134	66	150	125	58	144	62	51
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	141	150	149	134	150	135	70	150	124	57	141	59	49	132	52	43	124	46	38	78	41	51
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	151	130	151	131	78	140	108	59	129	65	52	64	57	45	57	51	40
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	151	142	151	141	130	151	131	78	140	108	59	129	65	52	64	57	45	57	51	40
	C	0-7	Interior	149	149	149	149	149	149	149	149	148	149	149	141	149	149	134	149	145	128	149	139	120	149	129	66	140	106	56	130	73	49	121	60	43	84	53	37	64	47	50
			Exposed	149	149	134	149	144	127	149	137	99	149	130	71	145	125	61	139	102	55	133	81	51	123	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	48
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	144	149	149	136	149	149	129	149	144	88	149	131	58	145	74	50	134	58	43	124	51	38	61	45	50	54	40	44
			Exposed	149	149	135	149	149	127	149	140	67	149	132	59	149	126	54	144	69	49	137	60	45	125	51	38	60	44	49	52	38	43	45	50	37	40	44	49	36	39	39
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	139	150	139	126	150	127	60	145	63	52	135	55	45	127	48	40	96	43	35
			Exposed	150	150	150	150	150	144	150	150	135	150	141	127	150	133	65	150	127	59	148	66	54	136	55	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	145	133	151	134	123	145	125	62	133	77	54	88	60	48	60	54	43			
			Exposed	151	151	151	151	151	151	151	151	143	151	147	135	151	140	128	151	133	104	149	128	65	134	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	149	149	149	149	149	143	149	149	135	149	146	129	149	139	120	149	133	83	149	128	65	138	98	55	128	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	149	139	117	149	132	76	146	126	62	139	104	56	133	81	51	127	65	46	119	60	42	75	50	54	59	43	46	51	37	40	45	49	36	40	44	51	53	39	26
		7-20	Interior	149	149	149	149	149	146	149	149	137	149	149	129	149	144	87	149	136	62	149	130	57	143	65	48	131	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	149	144	84	149	134	61	149	127	55	145	72	49	137	60	45	130	55	41	124	50	37	58	43	48	50	37	41	43	48	36	38	42	51	50	37	27	45	33	24
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	147	150	150	138	150	146	131	150	138	125	150	125	58	142	60	50	132	52	43	124	46	38	76	40	50	61	36	45
			Exposed	150	150	138	150	144	129	150	135	69	150	127	60	148	66	54	141	60	49	135	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	139	151	144	132	151	132	91	141	120	60	130	66	52	64	57	45	56	50	40	50	45	54
			Exposed	151	151	146	151	149	137	151	141	129	151	134	117	149	128	65	140	111	59	133	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	135	139	139	125	139	133	81	139	125	61	137	95	54	130	71	48
			Exposed	139	139	139	139	139	139	139	139	139	139	139	137	139	139	130	139	139	125	139	136	94	139	126	62	136	91	53	127	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	137	140	140	126	140	136	62	140	126	54	140	64	48	133	57	42
			Exposed	140	140	140	140	140	140	140	140	140	140	140	139	140	140	131	140	140	125	140	139	65	140	127	55	140	127	65	129	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	142	146	145	131	146	134	66	146	125	58	144	62	51
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	141	146	146	134	146	135	70	146	124	57	141	59	49	132	52	43	124	46	38	78	41	51
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	138	150	140	129	150	132	86	143	124	61
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	142	150	141	130	150	131	78	140	108	59	129	65	52	64	57	45	57	51	40
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	134	139	139	128	139	139	120	139	129	66	139	106	56	130	73	49	121	60	43	84	53	37	64	47	50
			Exposed	139	139	134	139	139	127	139	137	99	139	130	71	139	125	61	139	102	55	133	81	51	123	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	129	140	140	88	140	131	58	140	74	50	134	58	43	124	51	38	61	45	50	54	40	44
			Exposed	140	140	135	140	140	127	140	140	67	140	132	59	140	126	54	140	69	49	137	60	45	125	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	139	126	146	127	60	145	63	52	135	55	45	127	48	40	96	43	35
			Exposed	146	146	146	146	146	144	146	146	135	146	141	127	146	133	65	146	127	59	146	66	54	136	55	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	142	150	141	130	150	134	123	148	108	59	129	65	52	64	57	45	57	51	40
			Exposed	150	150	150	150	150	150	150	150	143	150	147	135	150	140	128	150	133	104	149	128	65	134	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	129	139	129	139	139	120	139	133	83	139	128	65	138	98	55	128	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	139	139	117	139	132	76	139	126	62	139	104	56	133	81	51	127	65	46	119	60	42	75	50	54	59	43	46	51	37	40	45	49	36	40	44	51	53	39	26
		7-20	Interior	140	140	140	140	140	140	140	140	137	140	140	129	140	140	87	140	136	62	140	130	57	140	65	48	131	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	140	140	84	140	140	134	61	140	127	55	140	72	49	137	60	45	130	55	41	124	50	37	58	43	48	50	37	41	43	48	36	38	42	51	50	37	27	45	33	24
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	138	147	146	131	147	138	125	147	125	58	142	60	50	132	52	43	124	46	38	76	40	50	61	36	45
			Exposed	147	147	138	147	144	129	147	135	69	147	127	60	147	66	54	141	60	49	135	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	139	151	144	132	151	132	91	141	120	60	130	66	52	64	57	45	56	50	40	50	45	54
			Exposed	151	151	146	151	149	137	151	141	129	151	134	117	149	128	65	140	111	59	133	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	81	126	125	61	126	95	54	126	71	48
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	94	126	126	62	126	91	53	126	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	62	127	126	54	127	64	48	127	57	42
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	65	127	127	55	127	127	47	127	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	131	135	134	66	135	125	58	135	62	51
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	134	135	135	134	135	135	70	135	124	57	135	59	49	132	52	43	124	46	38	78	41	51
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	138	140	140	140	140	140	129	140	132	86	140	124	61			
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	130	140	131	78	140	108	59	129	65	52	64	57	45	57	51	40
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	120	126	126	66	126	106	56	126	73	49	121	60	43	84	53	37	64	47	50
			Exposed	126	126	126	126	126	126	126	126	99	126	126	71	126	125	61	126	102	55	126	81	51	123	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
			Exposed	127	127	127	127	127	127	127	127	67	127	127	59	127	126	54	127	69	49	127	60	45	125	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
			Exposed	135	135	135	135	135	135	135	135	135	135	135	133	65	135	127	59	135	66	54	135	55	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35		
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	133	140	140	134	123	140	125	62	133	77	54	88	60	48	60	54	43
			Exposed	140	140	140	140	140	140	140	140	140	140	140	135	140	140	128	140	133	104	140	128	65	134	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	120	126	126	83	126	126	65	126	98	55	126	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	126	126	117	126	126	76	126	126	62	126	104	56	126	81	51	126	65	46	119	60	42	75	50	54	59	43	46	51	37	40	45	49	36	40	44	51	53	39	26
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	87	127	127	62	127	127	57	127	65	48	127	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	127	127	84	127	127	61	127	127	55	127	72	49	127	60	45	127	55	41	124	50	37	58	43	48	50	37	41	43	48	36	38	42	51	50	37	27	45	33	24
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	131	137	137	125	137	125	58	137	60	50	132	52	43	124	46	38	76	40	50	61	36	45
			Exposed	137	137	137	137	137	129	137	135	69	137	127	60	137	66	54	137	60	49	135	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	139	142	142	132	142	132	91	141	120	60	130	66	52	64	57	45	56	50	40	50	45	54
			Exposed	142	142	142	142	142	137	142	141	129	142	134	117	142	128	65	140	111	59	133	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35

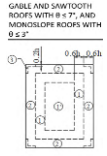
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

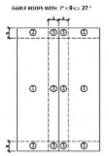
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

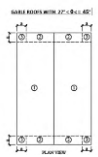
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

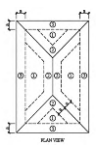












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

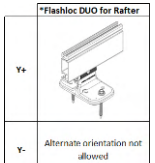
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	61	117	117	95	54	117	71	48
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	94	117	117	62	117	91	53	117	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	62	118	118	118	54	118	57	42
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	65	118	118	55	118	63	47	118	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	58	127	62	51
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	70	127	127	124	57	127	59	49	127	52	43	124	46	38	78	41	51
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	86	122	122	61
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	78	122	108	59
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	66	117	106	56	117	73	49	117	60	43	84	53	37	64	47	50
			Exposed	117	117	117	117	117	117	117	99	117	117	71	117	117	61	117	102	55	117	81	51	117	117	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	88	118	118	58	118	74	50	118	58	43	118	51	38	61	45	50	54	40	44
			Exposed	118	118	118	118	118	118	118	67	118	118	59	118	118	54	118	69	49	118	60	45	118	51	38	60	44	49	52	38	43	45	50	37	40	44	49	52	38	43	45	50	37	40	44	49	36	39	29
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	60	127	63	52	127	55	45	127	48	40	96	43	35
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	55	127	127	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	62	122	77	54	88	60	48	60	54	43
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	80	122	122	65	122	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	83	117	117	65	117	98	55	117	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	117	117	117	117	117	76	117	117	62	117	104	56	117	81	51	117	65	46	117	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	87	118	118	62	118	118	57	118	65	48	118	56	41	70	48	36	58	42	47	51	37	42	45	50	37	
			Exposed	118	118	84	118	118	61	118	118	55	118	72	49	118	60	45	118	55	41	118	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	125	129	125	58	129	60	50	129	52	43	124	46	38	76	40	50	61	36	45	
			Exposed	129	129	129	129	129	129	129	129	69	129	127	60	129	66	54	129	60	49	129	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	91	127	120	60	127	66	52	64	57	45	56	50	40	50	45	54
			Exposed	127	127	127	127	127	127	127	127	127	127	117	127	127	65	127	111	59	127	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35	
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	61	115	115	95	54	115	71	48
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	62	115	91	53	115	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	62	115	115	54	115	64	48	115	57	42
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	55	115	115	65	115	115	55	115	65	47	115	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	66	113*	113*	58
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	70	113*	113*	59	113*	59	49	113*	52	43	113*	46	38	78	41	51
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	86	109*	109*	61
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	78	109*	109*	59	109*	65	52	64	57	45	57	51	40			
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	66	115	106	56	115	73	49	115	60	43	84	53	37	64	47	50
			Exposed	115	115	115	115	115	115	115	99	115	115	71	115	115	61	115	102	55	115	81	51	115	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33	
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	58	115	74	50	115	58	43	115	51	38	61	45	50	54	40	44
			Exposed	115	115	115	115	115	115	115	67	115	115	59	115	115	54	115	69	49	115	60	45	115	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29	
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	60	113*	63	52	113*	55	45	113*	48	40	96	43	35
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	65	113*	113*	59	113*	66	54	113*	55	46	113*	47	39	81	41	51	61	36	45	54	48	40	48	43	35	
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	62	109*	109*	43
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	80	109*	109*	55	72	59	47	57	51	41	50	45	36	44	40	48
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	83	117	117	65	117	98	55	117	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	117	117	117	117	117	76	117	117	62	117	104	56	117	81	51	117	65	46	117	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	87	117	117	62	117	117	57	117	65	48	117	56	41	70	48	36	58	42	47	51	37	42	45	50	37	
			Exposed	117	117	84	117	117	61	117	117	55	117	72	49	117	60	45	117	55	41	117	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	58	118	60	50	118	52	43	118	46	38	76	40	50	61	36	45
			Exposed	118	118	118	118	118	118	118	69	118	118	60	118	66	54	118	60	49	118	54	45	118	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29	
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	91	114*	114*	60	114*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	65	114*	114*	59	114*	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35	
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	61	107	107	95	54	107	71	48
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	94	107	107	62	107	91	53	107	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	62	112*	112*	54	112*	64	48	112*	57	42
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	65	112*	112*	55	112*	112*	63	47	112*	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	66	102*	102*	51
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	70	102*	102*	57	102*	59	49	102*	52	43	102*	46	38	78	41	51
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	89*	99*	99*	61			
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	78	99*	99*	59	99*	65	52	64	57	45	57	51	40			
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	66	107	106	56	107	73	49	107	60	43	84	53	37	64	47	50
			Exposed	107	107	107	107	107	107	107	99	107	107	71	107	107	61	107	102	55	107	81	51	107	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33	
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	88	112*	112*	58	112*	74	50	118	58	43	118	51	38	61	45	50	54	40	44
			Exposed	112*	112*	112*	112*	112*	112*	112*	67	112*	112*	59	112*	112*	54	112*	69	49	112*	60	45	112*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29	
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	60	102*	63	52	102*	55	45	102*	48	40	96*	43	35
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	65	102*	102*	59	102*	66	54	102*	55	46	102*	47	39	81	41	51	61	36	45	54	48	40	48	43	35	
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	62	99*	77	54	93*	60	48	60	54	43
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	65	99*	80	55	72	59	47	57	51	41	50	45	36	44	40	48
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	83	111	111	65	111	98	55	111	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	111	111	111	111	111	76	111	111	62	111	104	56	111	81	51	111	65	46	111	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	87	111	111	62	111	111	57	111	65	48	111	56	41	70	48	36	58	42	47	51	37	42	45	50	37	
			Exposed	111	111	84	111	111	61	111	111	55	111	72	49	111	60	45	111	55	41	111	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	58	107*	60	50	107*	52	43	107*	46	38	76	40	50	61	36	45
			Exposed	107*	107*	107*	107*	107*	107*	107*	69	107*	107*	60	107*	66	54	107*	60	49	107*	54	45	107*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29	
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	95*	104*	104*	60	104*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	65	104*	104*	59	104*	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35	

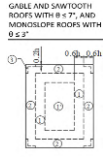
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

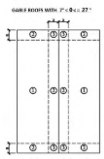
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

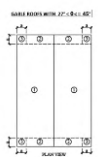
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

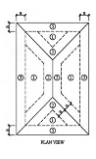












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

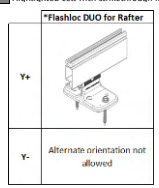
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	61	98	95	54	98	71	48
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	94	98	98	62	98	91	53	98	65	46	98	57	40	73	50	53	61	44	48
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	62	103*	103*	54	103*	64	48
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	65	103*	103*	55	103*	63	47	103*	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	66	91*	91*	58	91*	62	51
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	70	91*	91*	57	91*	59	49	91*	52	43	91*	46	38	78*	41	51
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	61
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	78*	86*	86*	59	86*	65	52	64	57	45	57	51	40
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	66	98	98	56	98	73	49	98	60	43	84	53	37	64	47	50
			Exposed	98	98	98	98	98	98	98	98	98	98	98	71	98	98	98	98	98	98	98	98	55	98	81	51	98	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	88	103*	103*	58	103*	74	50	103*	58	43	103*	51	38	61	45	50	54	40	44
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	67	103*	103*	59	103*	103*	103*	103*	103*	103*	103*	103*	60	103*	103*	45	103*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	60	91*	63	52	91*	55	45	91*	48	40	91*	43	35
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	65	91*	91*	59	91*	66	54	91*	55	46	91*	47	39	81*	41	51	61	36	45	47	39	48	43	35			
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	62	86*	77*	54	86*	60	48	60	54	43			
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	65	86*	80*	55	75*	59	47	57	51	41	50	45	36	44	40	48	39	53	42		
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	83	103	103	65	103	98	55	103	67	47	103	57	41	73	50	53	60	44	47	54	39	42
			Exposed	103	103	103	103	103	76	103	103	62	103	103	56	103	81	51	103	65	46	103	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	87	109*	109*	62	109*	109*	57	109*	65	48	109*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	109*	109*	84	109*	109*	61	109*	109*	55	109*	72	49	109*	60	45	109*	55	41	109*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	58	99*	60	50	99*	52	43	99*	46	38	76	40	50	61	36	45
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	69	99*	99*	60	99*	66	54	99*	60	49	99*	54	45	99*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	91*	94*	94*	60	94*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	65	94*	94*	59	94*	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	71	91	91	54	91	71	48
			Exposed	91	91	91	91	91	91	91	91	91	91	91	71	91	91	61	91	91	55	91	81	51	91	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	62	95*	95*	54	95*	64	48
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	55	95*	63	47	95*	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	66	79*	79*	58	79*	62	51
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	57	79*	59	49	79*	52	43	99*	46	38	78*	41	51
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	61
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65*	52	64*	57	45	57	51	40
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	66	91	91	56	91	73	49	91	60	43	84	53	37	64	47	50
			Exposed	91	91	91	91	91	91	91	91	91	91	91	71	91	91	61	91	91	55	91	81	51	91	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	58	95*	74	50	95*	58	43	95*	51	38	61	45	50	54	40	44
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	67	95*	95*	59	95*	95*	54	95*	69	49	95*	60	45	95*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	43	35
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	65	79*	79*	59	79*	66	54	79*	55	46	79*	47	39	79*	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62	75*	75*	52	75*	57	41	75*	52	43	75*	54	43
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65*	75*	75*	55	72*	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	83	96	96	65	96	96	55	96	67	47	96	57	41	73	50	53	60	44	47	54	39	42
			Exposed	96	96	96	96	96	76	96	96	62	96	96	56	96	81	51	96	65	46	96	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	87	101*	101*	62	101*	101*	57	101*	65	48	101*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	101*	101*	84	101*	101*	61	101*	101*	55	101*	72	49	101*	60	45	101*	55	41	101*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	58	87*	60	50	87*	52	43	87*	46	38	76*	40	50	61	36	45
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	69	87*	87*	60	87*	66	54	87*	60	49	87*	54	45	87*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	60	82*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	59	82*	76*	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	61	86	86	54	86	71	48
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	53	61	44	48
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	62	84*	84*	54	84*	64	48
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	65	84*	84*	55	84*	63	47	84*	55	41	67	48	36	58	42	47
		20-27	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	65	101*	101*	57	101*	61	51
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	81	98*	98*	61			
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	66	86	86	56	86	73	49	86	60	43	84	53	37	64	47	50
			Exposed	86	86	86	86	86	86	86	86	86	86	86	71	86	86	61	86	86	55	86	81	51	86	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	74*	50	54	40	44
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	67	84*	84*	59	84*	84*	54	84*	69	49	84*	60	45	84*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	59	101*	62	51	101*	54	45	101*	48	40	90*	43	35
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	83	90	90	65	90	90	55	90	67	47	90	57	41	73	50	53	60	44	47	54	39	42
			Exposed	90	90	90	90	90	76	90	90	62	90	90	56	90	81	51	90	65	46	90	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	87*	93*	93*	62	93*	93*	57	93*	65	48	93*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	93*	93*	84*	93*	93*	61	93*	93*	55	93*	72	49	93*	60	45	93*	55	41	93*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	58	77*	60	50	77*	52	43	77*	46	38	76*	40	50	61	36	45
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	69	77*	77*	60	77*	66	54	77*	60	49	77*	54	45	77*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	60	73*	66*	52	64*	57	45	56	50	40	50	45	54
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	65*	73*	59	73*	73*	54	65*	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35

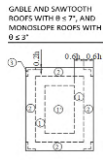
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

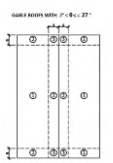
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

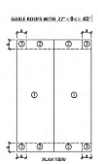
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

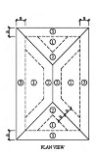












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

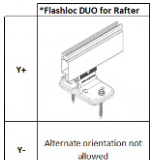
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	61	81	81	54	81	71	48
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	62	81	81	53	81	65	46	81	57	40	73	50	53	61	44	48
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62	75*	75*	54	75*	64	48	75*	57	42
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65*	75*	75*	55	75*	63	47	75*	55	41	67*	48	36	58	42	47	51	38	42
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	66	81	81	56	81	73	49	81	60	43	81	53	37	64	47	50
			Exposed	81	81	81	81	81	81	81	81	81	81	81	71	81	81	61	81	81	55	81	81	51	81	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	88
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	58	75*	74*	50	75*	58	43	75*	51	38	61	45	50	54	40	44
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	67*	75*	75*	59	75*	75*	54	75*	69*	49	75*	60	45	75*	51	38	60	44	49	52	38	43	45	50	37	40	44	88	36	39	29
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	60	93*	65	54
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	59	93*	62	51
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	64
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	42
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	83	85	85	65	85	85	55	85	67	47	85	57	41	73	50	53	60	44	47	54	39	42
			Exposed	85	85	85	85	85	76	85	85	62	85	85	56	85	81	51	85	65	46	85	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	26
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	62	83*	83*	57	83*	65	48	83*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	83*	83*	83*	83*	83*	61	83*	83*	55	83*	72*	49	83*	60	45	83*	55	41	83*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	57	100*	61	50	100*	54	45
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	89*	100*	100*	58	100*	60	49	100*	52	43	100*	45	38	73	40	33	60	36	29
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	80	98*	98*	60	98*	73	54
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	86*	98*	98*	59	98*	65	52	63	57	45	56	50	40	50	45	35
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	61	77	77	54	77	71	48
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	62	77	77	53	77	65	46	77	57	40	73	50	53	61	44	48
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	64
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	61	100*	100*	54	100*	64	47	100*	57	42
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	65	85*	85*	57	85*	61	51
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	66	77	77	56	77	73	49	77	60	43	77	53	37	64	47	50
			Exposed	77	77	77	77	77	77	77	77	77	77	77	71	77	77	61	77	77	55	77	77	51	77	61	43	77	52	37	62	45	48	54	39	42	47	52	37	42	46	88
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	57	100*	76	50	100*	60	44
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	79	100*	100*	57	100*	69	49	100*	57	43	88*	50	37	60	44	33	54	39	29
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	60	85*	65	54
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	59	85*	62	51	85*	54	45	85*	48	40	85*	43	35
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	64
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	62	80*	74*	54	77*	60	48	59	53	42
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	65	81	81	55	81	67	47	81	57	41	73	50	53	60	44	47	54	39	42
			Exposed	81	81	81	81	81	76	81	81	62	81	81	56	81	81	51	81	65	46	81	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	26
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62	75*	75*	57	75*	65*	48	75*	56	41	70*	48	36	58	42	47	51	37	42	45	50	37
			Exposed	75*	75*	75*	75*	75*	61	75*	75*	55	75*	72*	49	75*	60	45	75*	55	41	75*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	65	93*	93*	57	93*	61	50	93*	54	45
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	58	93*	60	49	93*	52	43	93*	45	38	73	40	33	60	36	29
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	81*	89*	89*	60	89*	73	54
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	85*	89*	89*	59	89*	65	52	63	57	45	56	50	40	50	45	35

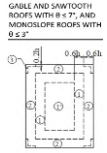
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

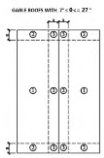
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

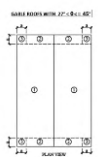
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

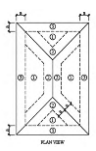












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

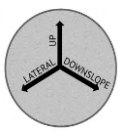
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

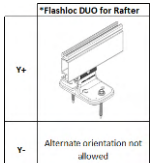
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	109	127	127	89	127	123	68	127	87	53	124	70	43	93	58	37	76	48	33	64	41	29
			Exposed	127	127	127	127	127	99	127	127	83	127	124	70	127	98	60	127	85	52	127	75	46	94	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	93	127	127	78	127	124	58	127	75	44	126	58	38	81	46	33	64	39	29	52	35	26
			Exposed	127	127	127	127	127	89	127	127	72	127	125	60	127	87	51	127	73	43	127	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	83	126	89	62	126	67	48	126	53	40	99	42	35	81	38	31
			Exposed	126	126	126	126	126	126	126	126	126	126	126	87	126	126	72	126	86	60	126	73	51	126	53	40	96	42	34	75	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	82	121	92	64	121	73	51	78	60	42	62	50	37			
			Exposed	121	121	121	121	121	121	121	121	121	121	121	121	121	121	96	121	121	81	121	99	69	121	74	52	75	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	127	127	127	127	127	124	127	127	91	127	127	77	127	115	66	127	93	57	127	81	50	105	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	127	114	65	127	89	55	127	76	46	114	65	41	91	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	127	127	127	127	127	100	127	127	80	127	127	66	127	97	56	127	81	48	127	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	127	96	55	127	77	46	127	64	40	97	53	36	79	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	22	24	18	
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	98	126	126	80	126	97	67	126	81	57	126	59	42	123	45	36	83	38	31	66	33	27	54	29	24	45	26	22
			Exposed	126	126	79	126	92	64	126	74	53	126	61	44	126	52	39	112	44	36	89	40	33	67	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	89	121	121	76	121	82	57	84	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	121	121	121	121	121	85	121	103	70	121	85	59	99	72	50	82	62	43	69	54	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	127	127	97	127	127	80	127	122	67	127	94	57	127	81	50	125	70	43	100	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	127	80	49	123	68	42	94	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	127	127	87	127	127	70	127	123	57	127	82	48	127	68	42	126	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	127	68	41	125	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	126	126	126	126	126	126	126	126	83	126	98	68	126	81	57	126	68	48	126	57	42	103	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	126	80	56	126	65	46	126	53	40	118	45	36	89	40	33	76	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	90	121	121	76	121	92	65	121	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	121	121	75	121	89	62	121	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	89	119	119	68	119	87	53	119	70	43	93	58	37	76	48	33	64	41	29
			Exposed	119	119	119	119	119	99	119	119	83	119	119	70	119	98	60	119	85	52	119	75	46	94	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	93	119	119	78	119	119	58	119	75	44	119	58	38	81	46	33	64	39	29	52	35	26
			Exposed	119	119	119	119	119	89	119	119	72	119	119	60	119	87	51	119	73	43	119	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	83	124	89	62	124	67	48	124	53	40	99	42	35	81	38	31
			Exposed	124	124	124	124	124	124	124	124	124	124	124	87	124	124	72	124	86	60	124	73	51	124	53	40	96	42	34	75	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	82	121	92	64	121	73	51	78	60	42	62	50	37			
			Exposed	121	121	121	121	121	121	121	121	121	121	121	121	121	121	96	121	121	81	121	99	69	121	74	52	75	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	119	119	119	119	119	119	119	119	91	119	119	77	119	115	66	119	93	57	119	81	50	105	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	119	114	65	119	89	55	119	76	46	114	65	41	91	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	119	119	119	119	119	100	119	119	80	119	119	66	119	97	56	119	81	48	119	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	119	96	55	119	77	46	119	64	40	97	53	36	79	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	98	124	124	80	124	97	67	124	81	57	124	59	42	123	45	36	83	38	31	66	33	27	54	29	24	45	26	22
			Exposed	124	124	79	124	92	64	124	74	53	124	61	44	124	52	39	112	44	36	89	40	33	67	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	89	121	121	76	121	82	57	84	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	121	121	75	121	89	62	121	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
	D	0-7	Interior	119	119	97	119	119	80	119	119	67	119	94	57	119	81	50	119	70	43	100	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	119	80	49	119	68	42	94	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	119	119	87	119	119	70	119	119	57	119	82	48	119	68	42	119	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	119	68	41	119	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	126	126	126	126	126	126	126	126	83	126	98	68	126	81	57	126	68	48	126	57	42	103	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	126	80	56	126	65	46	126	53	40	118	45	36	89	40	33	76	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	90	121	121	76	121	92	65	121	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	121	121	75	121	89	62	121	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	89	105	105	68	105	87	53	105	70	43	93	58	37	76	48	33	64	41	29			
			Exposed	105	105	105	105	105	99	105	105	83	105	105	70	105	98	60	105	85	52	105	75	46	94	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	93	105	105	78	105	105	58	105	75	44	105	58	38	81	46	33	64	39	29	52	35	26
			Exposed	105	105	105	105	105	89	105	105	72	105	105	60	105	87	51	105	73	43	105	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	83	115	89	62	115	67	48	115	53	40	99	42	35	81	38	31
			Exposed	115	115	115	115	115	115	115	115	115	115	115	87	115	115	72	115	86	60	115	73	51	115	53	40	96	42	34	75	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	96	112*	112*	81	112*	99	69	112*	74	52	75	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	105	105	105	105	105	105	105	105	91	105	105	77	105	105	66	105	93	57	105	81	50	105	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	105	105	65	105	89	55	105	76	46	105	65	41	91	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	105	105	105	105	105	105	105	105	80	105	105	66	105	97	56	105	81	48	105	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	105	96	55	105	77	46	105	64	40	97	53	36	79	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	98	115	115	80	115	97	67	115	81	57	115	59	42	115	45	36	83	38	31	66	33	27	54	29	24	45	26	22
			Exposed	115	115	79	115	92	64	115	74	53	115	61	44	115	52	39	112	44	36	89	40	33	67	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	89	112*	112*	76	112*	82	57	84	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	112*	112*	112*	112*	112*	85	112*	112*	70	112*	85	59	112*	72	50	82	62	43	69	54	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	105	105	97	105	105	80	105	105	67	105	94	57	105	81	50	105	70	43	100	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	105	80	49	105	68	42	94	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	105	105	87	105	105	70	105	105	57	105	82	48	105	68	42	105	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	105	68	41	105	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	117	117	117	117	117	117	117	117	83	117	98	68	117	81	57	117	68	48	117	57	42	103	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	117	80	56	117	65	46	117	53	40	117	45	36	89	40	33	76	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	116	116	116	116	116	116	116	116	116	116	116	90	116	116	76	116	92	65	116	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	116	116	75	116	89	62	116	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21

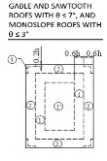
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

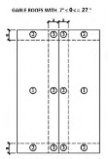
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

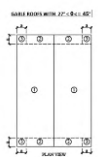
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

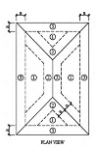












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

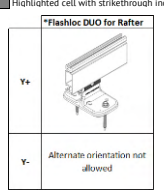
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	89	94	94	68	94	87	53	94	70	43	93	58	37	76	48	33	64	41	29
			Exposed	94	94	94	94	94	94	94	94	83	94	94	70	94	94	60	94	85	52	94	75	46	94	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	78	94	94	58	94	75	44	94	58	38	81	46	33	64	39	29	52	35	26	
			Exposed	94	94	94	94	94	89	94	94	72	94	94	60	94	87	51	94	73	43	94	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	83	100*	89*	62	100*	67	48	100*	53	40	99*	42	35	81	38	31
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	87	100*	100*	72	100*	86	60	100*	73	51	100*	53	40	96*	42	34	75	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	83*	95*	92*	64	95*	73	51	78	60	42	62	50	37
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*
	C	0-7	Interior	94	94	94	94	94	94	94	94	91	94	94	77	94	94	66	94	93	57	94	81	50	94	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	94	94	94	89	55	94	76	46	94	65	41	91	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20	
		7-20	Interior	94	94	94	94	94	94	94	94	80	94	94	66	94	94	56	94	81	48	94	69	42	92	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	94	94	55	94	94	70	94	94	64	94	94	60	94	87	51	94	73	43	94	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	98*	100*	100*	80	100*	97*	67	100*	81	57	100*	59	42	100*	45	36	83	38	31	66	33	27	54	29	24	45	26	22
			Exposed	100*	100*	79	100*	92*	64	100*	74	53	100*	61	44	100*	52	39	100*	44	36	89*	40	33	67	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	89*	95*	95*	76	95*	82*	57	84*	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	95*	95*	95*	95*	95*	86*	95*	95*	70	95*	85*	59	95*	72	50	83*	62	43	69	54	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	94	94	94	94	94	80	94	94	67	94	94	57	94	81	50	94	70	43	94	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	94	80	49	94	68	42	94	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	94	94	87	94	94	70	94	94	57	94	82	48	94	68	42	94	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	94	68	41	94	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	104*	104*	104*	104*	104*	104*	104*	104*	83	104*	98*	68	104*	81	57	104*	68	48	104*	57	42	103*	43	35	78	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	104*	80	56	104*	65	46	104*	53	40	104*	45	36	89	40	33	76	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	91*	100*	100*	76	100*	93*	65	100*	80	56	79	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	100*	100*	75	100*	89*	62	100*	74	52	83	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	68	90	87	53	90	70	43	90	58	37	76	48	33	64	41	29
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	68	90	87	53	90	70	43	90	58	38	74	47	32	60	39	28
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	78	94*	94*	58	94*	75	44	94*	58	38	81	46	33	64	39	29	52	35	26
			Exposed	94*	94*	94*	94*	94*	89*	94*	94*	72	94*	94*	60	94*	87*	51	94*	73	43	94*	62	39	82	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	62	80*	67	48	80*	53	40	80*	42	35	80*	38	31
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	80*	60	80*	73*	51	80*	53	40	80*	42	34	75*	36	30	61	31	26	50	28	23	42	25	31
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65*	75*	73*	51	75*	60	42	62	50	37
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	69*	75*	74*	52	75*	58	41	57	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	77	90	90	66	90	90	57	90	81	50	90	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	90	90	65	90	89	55	90	76	46	90	65	41	90	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	66	94*	94*	56	94*	81	48	94*	69	42	92*	51	35	68	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	94*	94*	55	94*	77	46	94*	64	40	94*	53	36	79	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	67	80*	80*	57	80*	59	42	80*	45	36	80*	38	31	66	33	27	54	29	24	45	26	22
			Exposed	80*	80*	79*	80*	80*	64	80*	74*	53	80*	61	44	80*	52	39	80*	44	36	80*	40	33	67	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	57	75*	63	44	63	51	38	50	42	33	41	37	29	36	33	26
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	70*	75*	75*	59	75*	72*	50	75*	62	43	69*	54	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	93	93	93	93	93	80	93	93	67	93	93	57	93	81	50	93	70	43	93	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	93	80	49	93	68	42	93	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	97*	97*	87	97*	97*	70	97*	97*	57	97*	82	48	97*	68	42	97*	58	38	89	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	97*	68	41	97*	56	37	82	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	83*	88*	88*	68	88*	81*	57	88*	68	48	88*	57	42	88*	43	35	78*	37	30	62	32	26	50	28	23	42	24	31	37	22	27
			Exposed	88*	80*	56	88*	65	46	88*	53	40	88*	45	36	88*	40	33	76*	36	30	66	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	76*	82*	82*	65	82*	80*	56	79*	61	42	59	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	82*	82*	75*	82*	82*	62	82*	74*	52	82*	63	44	69	54	39	58	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	68	84	84	53	84	70	43	84	58	37	76	48	33	64	41	29
			Exposed	84	84	84	84	84	84	84	84	83	84	84	70	84	84	60	84	84	52	84	75	46	84	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	78*	80*	80*	58	80*	75*	44	80*	58	38	80*	46	33	64	39	29	52	35	26
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	80*	60	80*	80*	51	80*	73*	43	80*	62	39	80*	47	33	62	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62*	66*	66*	62*	66*	66*	53	66*	66*	62*	66*	66*	38
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	60*	66*	66*	51	66*	53	40	66*	42	34	66*	36	30	61*	31	26	50	28	23	42	25	31
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	51	62*	62*	51	62*	60*	42	62*	50	37
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	53*	62*	58*	41	57*	47	36	45	39	31	39	35	28	34	31	24
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	77	84	84	66	84	84	57	84	81	50	84	63	40	81	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	84	84	65	84	84	55	84	76	46	84	65	41	84	57	37	79	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	66	80*	80*	56	80*	80*	48	80*	69*	42	80*	51	35	68*	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	80*	80*	55	80*	77*	46	80*	64	40	80*	53	36	79*	45	33	67	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	64*	66*	66*	53	66*	61*	44	66*	52	39	66*	44	36	66*	40	32	66*	34	28	53	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	44	62*	51	38	50	42	33	41	37	29	36	33	26
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59	62*	62*	50	62*	62*	43	62*	54*	39	51	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	87	87	87	87	87	80	87	87	67	87	87	57	87	81	50	87	70	43	87	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	87	80	49	87	68	42	87	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	88*	88*	87*	88*	88*	70	88*	88*	57	88*	82*	48	88*	68	42	88*	58	38	88*	50	35	65	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	88*	68	41	88*	56	37	82*	46	33	68	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	72*	57	72*	68*	48	72*	57	42	72*	43	35	72*	37	30	62*	32	26	50	28	23	42	24	31	37	22	27
			Exposed	72*	72*	56	72*	65*	46	72*	53	40	72*	45	36	72*	40	33	72*	36	30	66*	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	65*	68*	68*	56	68*	61*	42	59*	48	36	46	40	32	39	35	28	34	31	24	30	27	22
			Exposed	68*	68*	68*	68*	68*	62*	68*	68*	52	68*	63*	44	68*	54	39	59*	47	36	49	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21

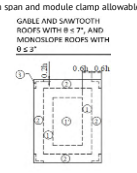
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

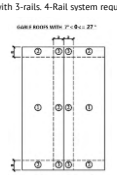
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

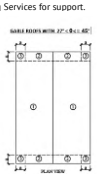
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

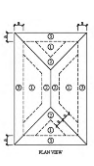












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

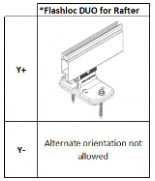
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	53	77	70	43	77	58	37	76	48	33	64	41	29			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	70	77	77	60	77	77	52	77	75	46	77	58	38	74	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	44	67*	58*	38	67*	46	33	64*	39	29	52	35	26			
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	51	67*	67*	43	67*	62*	39	67*	47	33	62*	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	48*	56*	53*	40	56*	42	35	56*	38	31			
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	51*	56*	53*	40	56*	42	34	56*	36	30	56*	31	26	50*	28	23	42	25	31
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	42	53*	50*	37			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	41	53*	47*	36	46*	39	31	39	35	28	34	31	24			
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	66	77	77	57	77	77	50	77	63	40	77	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	77	77	65	77	77	55	77	76	46	77	65	41	77	57	37	77	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	29
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	56	67*	67*	48	67*	67*	42	67*	51	35	67*	41	30	53	35	26	42	31	23	37	27	30	33	24	27
			Exposed	67*	67*	55	67*	67*	46	67*	64*	40	67*	53	36	67*	45	33	67*	40	30	57	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	30	22	24	18
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	42	56*	45	36	56*	38	31	56*	33	27	54*	29	24	45	26	22
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	56*	44	56*	52*	39	56*	44	36	56*	40	33	56*	34	28	53*	29	24	43	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	44	53*	51*	38	50*	42	33	41	37	29	36	33	26			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	43	53*	53*	39	51*	42	33	40	36	29	35	31	25	31	27	22	27	24	29	24	21	26			
	D	0-7	Interior	81	81	81	81	81	80	81	81	67	81	81	57	81	81	50	81	70	43	81	62	39	77	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	81	80	49	81	68	42	81	58	38	80	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	74*	74*	74*	74*	74*	70*	74*	74*	57	74*	74*	48	74*	68*	42	74*	58	38	74*	50	35	65*	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	74*	68*	41	74*	56	37	74*	46	33	68*	40	30	57	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	57*	61*	61*	48	61*	57*	42	61*	43	35	61*	37	30	61*	32	26	50	28	23	42	24	31	37	22	27
			Exposed	61*	61*	56*	61*	61*	46	61*	53*	40	61*	45	36	61*	40	33	61*	36	30	61*	33	27	51	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	42	58*	48	36	46	40	32	39	35	28	34	31	24			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	52*	58*	58*	44	58*	54*	39	58*	47	36	50*	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
70	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	68	37	70	48	33	70	48	33	64	41	29			
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	58	38	70	47	32	60	39	28	42	30	21	37	27	29
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	44	58*	58*	38	58*	46	33	58*	39	29	52*	35	26
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	51*	58*	58*	43	58*	58*	39	58*	47	33	58*	38	28	48	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	42*	35	48*	38	31
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	42*	34	48*	36	30	48*	31	26	48*	28	23	42*	25	31
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	37			
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	46*	46*	46*	46*	41*	46*	46*	36	45*	40*	31	39	35	28	34	31	24			
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	57	70	70	50	70	63	40	70	51	34	65	42	29	53	36	26	45	32	23	39	28	30
			Exposed	70	70	65	70	70	55	70	70	46	70	65	41	70	57	37	70	50	34	69	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	29
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	48	58*	58*	42	58*	51*	35	58*	41	30	53*	35	26	42	31	23	37	27	30	33	24	27
			Exposed	58*	58*	55*	58*	58*	46	58*	58*	40	58*	53*	36	58*	45	33	58*	40	30	57*	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	45*	36	48*	38	31	48*	33	27	48*	29	24	45*	26	22
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	39	48*	44*	36	48*	40	33	48*	34	28	48*	29	24	43*	25	21	37	22	27	33	29	24	29	26	21
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40	46*	46*	33	46*	46*	33	41*	37	29	36	33	26			
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	46*	41*	46*	46*	41*	46*	46*	36	45*	40*	31	39	35	28	34	31	24	30	27	21			
	D	0-7	Interior	75	75	75	75	75	75	75	75	67	75	75	57	75	75	50	75	70	43	75	62	39	75	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	75	75	49	75	68	42	75	58	38	75	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	57*	64*	64*	48	64*	64*	42	64*	58*	38	64*	50	35	64*	40	29	49	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	64*	64*	41	64*	56*	37	64*	46	33	64*	40	30	57*	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	48*	53*	53*	42	53*	43	35	53*	37	30	53*	32	26	50*	28	23	42	24	31	37	22	27
			Exposed	53*	53*	53*	53*	53*	46*	53*	53*	40	53*	45	36	53*	40	33	53*	36	30	53*	33	27	51*	28	23	41	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	42	50*	48*	36	46*	40	32	39	35	28	34	31	24			
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	44*	50*	50*	39	50*	47*	36	49*	41	33	39	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
80	B	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	53	62	62	43	62	58	37	62	48	33	62	41	29
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	62	52	62	62	46	62	58	38	62	47	32	60	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	44	51*	51*	38	51*	46*	33	51*	39	29	51*	35	26
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	43	51*	51*	39	51*	47*	33	51*	38	28	48*	33	25	40	29	22	35	26	29	31	23	25
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	42*	35	43*	38*	31
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	42*	34	43*	36	30	43*	31	26	43*	28	23	42*	25	31
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*			
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	39*	31	39*	35*	28	35*	31	24			
	C	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	43	62	58	37	62	48	33
			Exposed	62	62	62	62	62	55	62	62	46	62	62	41	62	57	37	62	50	34	62	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	29
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*
			Exposed	51*	51*	51*	51*	51*	46*	51*	51*	40	51*	51*	36	51*	45*	33	51*	40	30	51*	37	27	43	31	23	36	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	36	43*	40*	33	43*	34	28	43*	29	24	43*	25	21	37*	22	27	33	29	24	29	26	21
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	33	40*	40*	38*	40*	40*	33	40*	37*	29	36*	33	26
	D	0-7	Interior	69	69	69	69	69	69	69	69	67	69	69	57	69	69	50	69	69	43	69	62	39	69	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	69	69	49	69	68	42	69	58	38	69	50	34	69	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	48	57*	57*	42	57*	57*	38	57*	50*	35	57*	40	29	49*	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	57*	57*	37	57*	56*	37	57*	46	33	57*	40	30	57*	37	27	48	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	43*	35	47*	37	30	47*	32	26	47*	28	23	42*	24	31	37	22	27
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	40	47*	45*	36	47*	40	33	47*	36	30	47*	33	27	47*	28	23	41*	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	36	45*	40*	32	39*	35	28	34	31	24			
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	40*	45*	45*	36	45*	42*	33	39*	35	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21

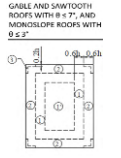
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

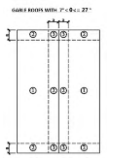
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

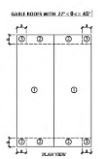
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

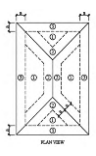












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

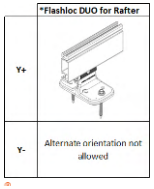
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	37	55	48	33	55	41	29			
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	46	55	55	38	55	47	32	55	39	28	49	34	24	42	30	21	37	27	29
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	44*	46*	46*	38	46*	46*	33	46*	46*	39	29	46*	35	26		
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	43*	46*	46*	39	46*	46*	33	46*	38	28	46*	33	25	40*	29	22	35	26	29	31	23	25
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	31			
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	36*	30	38*	31	26	38*	28	23	38*	25	31
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	40	55	51	34	55	42	29	53	36	26	45	32	23	39	28	30
			Exposed	55	55	55	55	55	55	55	55	46	55	55	41	55	55	37	55	50	34	55	44	31	54	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	35	46*	41*	30	46*	35	26	42*	31	23	37	27	30	33	24	27
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	46*	36	46*	45*	33	46*	40*	30	46*	37	27	43*	31	23	36	27	30	32	23	26	28	30	23	24	27	30	22	24	18
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	36*	38*	38*	31	38*	33*	27	38*	29	24	38*	26	22
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	38*	28	38*	29	24	38*	25	21	37*	22	27	33*	24	29	26	21	
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	36*	33*	26			
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	35*	31	25	31	27	22	27	24	29	24	21	26
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	57	61	61	50	61	61	43	61	61	39	61	49	33	61	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	61	61	49	61	61	42	61	58	38	61	50	34	61	44	31	60	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	48*	51*	51*	42	51*	51*	38	51*	50*	35	51*	40	29	49*	34	25	40	29	22	35	26	29	31	23	25	27	30	22
			Exposed	51*	51*	41	51*	51*	37	51*	46*	33	51*	40	30	51*	37	27	48*	33	25	42	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	37*	30	42*	32	26	42*	28	23	42*	24	31	37*	22	27
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	36	42*	40*	33	42*	36	30	42*	33	27	42*	28	23	41*	24	30	35	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	32	39*	35*	28	34	31	24	30	27	22
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	36*	40*	40*	33	39*	35*	28	34	30	24	29	26	21	25	23	27	22	30	24	30	27	21
100	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	37	50	48	33	50	41	29
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	38	50	47	32	50	39	28	40	34	24	42	30	21	37	27	28
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	33	42*	39*	29	42*	35	26
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	47*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	42	52*	37	31
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	42	49*	47*	37
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	40	50	50	34	50	42	29	50	36	26	45	32	23	39	28	30
			Exposed	50	50	50	50	50	50	50	50	46	50	50	41	50	50	37	50	50	34	50	44	31	50	37	26	44	32	22	37	27	29	33	24	26	29	21	23	26	28	20
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	41*	30	42*	35	26	42*	31	23	37*	27	30	33	24	27
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	36*	42*	42*	33	42*	40*	30	42*	37*	27	42*	31	23	36*	27	30	32	23	26	28	30	23	24	27	20	22	24	18
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	47*	52*	50*	42	52*	44	37	52*	39	33
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	51*	42	52*	43	36	52*	38	31	52*	33	27	49*	29	24	44	26	21
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	39			
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	43*	49*	47*	38	46*	41	33	41	36	29	36	32	26
	D	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	43	55	55	39	55	49	33	55	40	28	50	35	25	42	30	21	37	27	29	33	24	25
			Exposed	55	55	49	55	55	42	55	55	38	55	50	34	55	44	31	55	40	28	53	36	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	46*	35	46*	40*	29	46*	34	25	40*	29	22	35	26	29	31	23	25	27	30	22
			Exposed	46*	46*	41*	46*	46*	37	46*	46*	33	46*	40*	30	46*	37	27	46*	33	25	42*	31	23	35	26	29	30	22	25	26	29	22	23	25	19	31	22	17	27	20	15
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	37*	30	38*	32	26	38*	28	23	38*	24	31	37*	22	27
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	36*	38*	38*	33*	38*	36*	30	38*	33*	27	38*	28	23	38*	24	30	35*	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*	36*	35*	28	34*	31	24	30	27	22
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	35*	28	34*	30	24	29	26	21	25	23	27	22	30	24	30	27	21

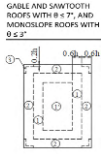
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

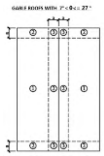
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

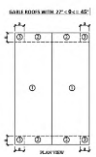
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

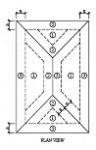












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

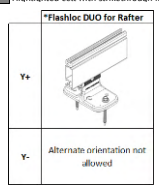
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	147	150	144	127	150	134	88	147	126	63	138	101	55	131	75	49
			Exposed	150	150	150	150	150	150	150	150	146	150	150	138	150	150	132	150	143	126	150	137	103	148	127	63	137	96	54	128	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	139	151	150	127	151	138	63	151	128	55	144	68	49	134	59	43
			Exposed	151	151	151	151	151	151	151	151	150	151	151	141	151	151	133	151	149	126	151	141	70	151	128	56	142	65	48	131	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	147	132	151	136	77	151	126	59	146	63	52			
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	143	151	151	136	151	136	84	151	125	58	143	61	50	133	53	44	125	47	39	84	42	34
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	140	152	142	130	152	133	101	145	126	63
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	143	152	143	131	152	132	88	142	123	60	131	69	53	65	59	46	58	52	41
	C	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	142	150	150	135	150	147	129	150	141	124	150	130	70	141	113	57	132	77	50	124	61	43	89	54	38	66	48	51
			Exposed	150	150	135	150	145	128	150	138	108	150	132	75	147	126	62	140	108	57	134	85	52	124	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	145	151	151	137	151	151	130	151	146	124	151	132	59	147	85	51	135	59	44	125	52	38	62	46	51	55	41	45
			Exposed	151	151	137	151	151	128	151	142	75	151	134	61	151	127	55	146	78	50	139	62	46	126	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	151	140	151	141	127	151	129	61	147	64	53	137	56	46	129	49	41	106	44	36
			Exposed	151	151	151	151	151	146	151	151	137	151	143	129	151	135	72	151	128	60	150	75	55	138	57	47	127	48	40	88	42	35	63	37	46	55	49	41	49	43	36
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	147	135	152	136	125	147	126	64	135	83	56	126	62	49	61	55	44
			Exposed	152	152	152	152	152	152	152	152	144	152	148	137	152	141	130	152	135	124	151	129	70	136	87	56	124	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	150	150	150	150	150	144	150	150	137	150	147	130	150	141	124	150	135	89	150	129	67	139	104	56	129	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	150	140	124	150	133	82	148	127	63	141	111	57	134	85	52	129	69	47	124	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	151	151	151	151	151	148	151	151	139	151	151	131	151	146	124	151	138	64	151	131	58	145	72	49	132	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	151	145	124	151	136	62	151	128	56	147	82	50	138	62	46	131	56	42	125	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	149	151	151	140	151	148	133	151	140	126	151	127	60	144	62	51	134	53	44	125	47	39	82	41	34	62	37	46
			Exposed	151	151	140	151	145	131	151	136	82	151	129	61	150	75	55	143	61	50	137	56	46	126	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	140	152	146	134	152	134	114	143	124	61	131	71	53	65	58	46	58	52	41	51	46	36
			Exposed	152	152	147	152	151	139	152	142	131	152	135	124	151	129	70	142	123	60	135	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	141	141	127	141	134	88	141	126	63	138	101	55	131	75	49
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	132	141	141	126	141	137	103	141	127	63	137	96	54	128	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	139	141	141	127	141	138	63	141	128	55	141	68	49	134	59	43
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	133	141	141	126	141	141	70	141	128	56	141	65	48	131	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	147	147	132	147	136	77	147	126	59	146	63	52
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	143	147	147	136	147	136	84	147	125	58	143	61	50	133	53	44	125	47	39	84	42	34
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	140	151	142	130	151	133	101	145	126	63
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	143	151	143	131	151	132	88	142	123	60	131	69	53	65	59	46	58	52	41
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	129	141	141	124	141	130	70	141	113	57	132	77	50	124	61	43	89	54	38	66	48	51
			Exposed	141	141	135	141	141	128	141	138	108	141	132	75	141	126	62	140	108	57	134	85	52	124	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	141	141	130	141	141	124	141	132	59	141	85	51	135	59	44	125	52	38	62	46	51	55	41	45
			Exposed	141	141	137	141	141	128	141	141	75	141	134	61	141	127	55	141	78	50	139	62	46	126	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	140	147	147	132	147	136	77	147	126	59
			Exposed	147	147	147	147	147	146	147	147	137	147	143	129	147	135	72	147	128	60	147	75	55	138	57	47	127	48	40	88	42	35	63	37	46	55	49	41	49	43	36
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	140	151	142	130	151	133	101	145	126	63
			Exposed	151	151	151	151	151	151	151	151	144	151	148	137	151	141	130	151	135	124	151	129	70	136	87	56	124	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	130	141	141	124	141	135	89	141	129	67	139	104	56	129	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	141	140	124	141	133	82	141	127	63	141	111	57	134	85	52	129	69	47	124	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	141	141	141	141	141	141	141	141	139	141	141	131	141	141	124	141	138	64	141	131	58	141	72	49	132	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	141	141	124	141	141	136	62	141	128	56	141	82	50	138	62	46	131	56	42	125	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	148	148	148	148	148	148	148	148	148	148	148	148	148	148	140	148	148	133	148	140	126	148	127	60	144	62	51	134	53	44	125	47	39	82	41	34	62	37	46
			Exposed	148	148	140	148	145	131	148	136	82	148	129	61	148	75	55	143	61	50	137	56	46	126	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	140	152	146	134	152	134	114	143	124	61	131	71	53	65	58	46	58	52	41	51	46	36
			Exposed	152	152	147	152	151	139	152	142	131	152	135	124	151	129	70	142	123	60	135	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	88	127	126	63	127	101	55	127	75	49
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	103	127	127	63	127	96	54	127	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	127	128	128	63	128	128	55	128	68	49	128	59	43
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	126	128	128	70	128	128	56	128	65	48	128	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	132	136	136	77	136	126	59	136	63	52
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	84	136	125	58	136	61	50	133	53	44	125	47	39	84	42	34
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	140	141	141	130	141	133	101	141	126	63
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	131	141	132	88	141	123	60	131	69	53	65	59	46	58	52	41
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	124	127	127	70	127	77	50	124	61	43	89	54	38	66	48	51			
			Exposed	127	127	127	127	127	127	127	127	108	127	127	75	127	126	62	127	108	57	127	85	52	124	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	124	128	128	59	128	59	44	125	52	38	85	51	38	62	46	51	55	41	45
			Exposed	128	128	128	128	128	128	128	128	75	128	128	61	128	127	55	128	78	50	128	62	46	126	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	127	136	129	61	136	64	53	136	56	46	129	49	41	106	44	36
			Exposed	136	136	136	136	136	136	136	136	136	136	136	129	136	135	72	136	128	60	136	75	55	136	57	47	127	48	40	88	42	35	63	37	46	55	49	41	49	43	36
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	136	125	141	126	64	135	83	56	126	62	49	61	55	44
			Exposed	141	141	141	141	141	141	141	141	141	141	141	137	141	141	130	141	135	124	141	129	70	136	87	56	124	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	124	127	127	89	127	127	67	127	104	56	127	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	127	127	124	127	127	82	127	127	63	127	111	57	127	85	52	127	69	47	124	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	124	128	128	64	128	128	58	128	72	49	128	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	128	128	124	128	128	62	128	128	56	128	82	50	128	62	46	128	56	42	125	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	133	138	138	126	138	127	60	138	62	51	134	53	44	125	47	39	82	41	34	62	37	46
			Exposed	138	138	138	138	138	136	82	138	129	61	138	75	55	138	61	50	137	56	46	126	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30		
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	140	143	143	134	143	134	114	142	124	61	131	71	53	65	58	46	58	52	41	51	46	36
			Exposed	143	143	143	143	143	139	143	142	131	143	135	124	143	129	70	142	123	60	135	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36

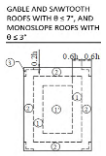
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

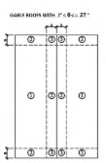
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

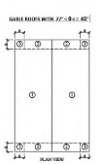
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

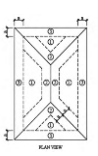












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

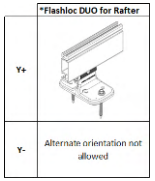
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	63	118	118	101	55	118	75	49
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	103	118	118	63	118	96	54	118	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	55	119	119	68	49	119	59	43
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	70	119	119	56	119	65	48	119	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	77	128	128	126	59	128	63	52
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	84	128	125	58	128	61	50	128	53	44	125	47	39	84	42	34
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	101	124	124	63		
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	123	60	124	69	53	65	59	46	58	52	41
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	70	118	113	57	118	77	50	118	61	43	89	54	38	66	48	51
			Exposed	118	118	118	118	118	118	118	108	118	118	75	118	118	62	118	108	57	118	85	52	118	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	59	119	85	51	119	59	44	119	52	38	62	46	51	55	41	45
			Exposed	119	119	119	119	119	119	119	75	119	119	61	119	119	55	119	78	50	119	62	46	119	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30	
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	127	128	128	61	128	64	53	128	56	46	128	49	41	106	44	36
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	72	128	128	60	128	75	55	128	57	47	127	48	40	88	42	35	63	37	46	55	49	41	49	43	36	
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	64	124	83	56	124	62	49	61	55	44
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	70	124	87	56	124	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	89	118	118	67	118	104	56	118	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	118	118	118	118	118	82	118	118	63	118	111	57	118	85	52	118	69	47	118	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	64	119	119	58	119	72	49	119	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	119	119	119	119	119	62	119	119	56	119	82	50	119	62	46	119	56	42	119	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	126	130	127	60	130	53	44	125	47	39	82	41	34	62	37	46			
			Exposed	130	130	130	130	130	130	130	130	82	130	129	61	130	75	55	130	61	50	130	56	46	126	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	114	129	104	61	129	71	53	65	58	46	58	52	41	51	46	36
			Exposed	129	129	129	129	129	129	129	129	129	129	129	124	129	129	70	129	123	60	129	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	63	115	115	101	55	115	75	49
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	103	115	115	63	115	96	54	115	68	47	109	58	41	77	51	36	62	45	49
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	63	116	116	68	49	116	59	43
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	56	116	56	42	76	49	36	59	43	48	52	38	43			
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	77	114*	114*	59	114*	63	52			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	84	114*	114*	58	114*	61	50	114*	53	44	114*	47	39	84	42	34
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	63			
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	88	110*	110*	60	110*	110*	60	110*	69	53	65	59	46	58	52	41
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	70	115	113	57	115	77	50	115	61	43	89	54	38	66	48	51
			Exposed	115	115	115	115	115	115	115	108	115	115	75	115	115	62	115	108	57	115	85	52	115	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	59	116	85	51	116	116	59	44	116	52	38	62	46	51	55	41
			Exposed	116	116	116	116	116	116	116	75	116	116	61	116	116	55	116	78	50	116	62	46	116	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30	
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	64	114*	114*	53	114*	49	41	106	44	36
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	72	114*	114*	60	114*	75	55	114*	57	47	114*	48	40	88	42	35	63	37	46	55	49	41	49	43	36	
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	63
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	70	110*	87	56	110*	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	89	118	118	67	118	104	56	118	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	118	118	118	118	118	82	118	118	63	118	111	57	118	85	52	118	69	47	118	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	64	118	118	58	118	72	49	118	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	118	118	118	118	118	62	118	118	56	118	82	50	118	62	46	118	56	42	118	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	60	119	62	51	119	53	44	119	47	39	82	41	34	62	37	46
			Exposed	119	119	119	119	119	119	119	119	82	119	119	61	119	75	55	119	61	50	119	56	46	119	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	61	115	71	53	65	58	46	58	52	41	51	46	36
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	70	115	115	60	115	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	88	108	108	63	108	101	55	108	75	49
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	103	108	108	63	108	96	54	108	68	47	108	58	41	77	51	36	62	45	49
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	63	113*	113*	55	113*	68	49	113*	59	43
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	70	113*	113*	56	113*	65	48	113*	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	77	103*	103*	59	103*	63	52			
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	84	103*	103*	58	103*	61	50	103*	53	44	103*	47	39	84	42	34
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	63			
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	90*	100*	100*	60	100*	69	53	65	59	46	58	52	41
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	70	108	108	57	108	77	50	108	61	43	89	54	38	66	48	51
			Exposed	108	108	108	108	108	108	108	108	108	108	108	75	108	108	62	108	108	57	108	85	52	108	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	59	113*	85	51	113*	59	44	113*	52	38	62	46	51	55	41	45
			Exposed	113*	113*	113*	113*	113*	113*	113*	75	113*	113*	61	113*	113*	55	113*	78	50	113*	62	46	113*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30	
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	64	103*	103*	53	103*	49	41	103*	44	36
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	72	103*	103*	60	103*	75	55	103*	57	47	103*	48	40	88	42	35	63	37	46	55	49	41	49	43	36	
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	63
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	63
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	89	112	112	67	112	104	56	112	71	48	111	58	41	77	51	36	62	45	48	55	40	43
			Exposed	112	112	112	112	112	82	112	112	63	112	111	57	112	85	52	112	69	47	112	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	28
		7-20	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	64	113	113	58	113	72	49	113	57	42	80	49	37	59	43	48	52	38	43	46	51	38
			Exposed	113	113	113	113	113	62	113	113	56	113	82	50	113	62	46	113	56	42	113	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	60	108*	62	51	108*	53	44	108*	47	39	82	41	34	62	37	46
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	82	108*	108*	61	108*	75	55	108*	61	50	108*	56	46	108*	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	61	105*	71	53	65	58	46	58	52	41	51	46	36
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	70	105*	105*	60	105*	82	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36

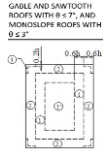
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

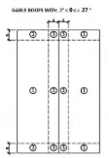
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

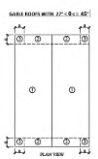
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

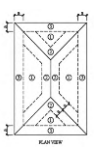












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

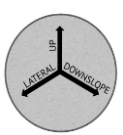
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

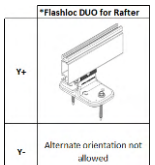
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	63	99	99	55	99	75	49			
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	63	99	96	54	99	68	47	99	58	41	77	51	36	62	45	49
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	59	43			
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	70	105*	105*	56	105*	65	48	105*	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	77	93*	93*	59	93*	63	52			
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	84*	93*	93*	58	93*	61	50	93*	53	44	93*	47	39	84*	42	34			
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	63			
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	60	88*	69	53	65	59	46	58	52	41						
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	70	99	99	57	99	77	50	99	61	43	89	54	38	66	48	51
			Exposed	99	99	99	99	99	99	99	99	99	99	75	99	99	62	99	99	57	99	85	52	99	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	59	105*	85	51	105*	59	44	105*	52	38	62	46	51	55	41	45
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	75	105*	105*	61	105*	105*	55	105*	78	50	105*	62	46	105*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	61	93*	64	53	93*	56	46	93*	49	41	93*	44	36			
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	72	93*	93*	60	93*	75	55	93*	57	47	93*	48	40	88*	42	35	63	37	46	55	49	41	49	43	36			
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	64	88*	83*	56	88*	62	49	61	55	44						
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	70	88*	87*	56	88*	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	67	104	104	56	104	71	48	104	58	41	77	51	36	62	45	48	55	40	43
			Exposed	104	104	104	104	104	82	104	104	63	104	104	57	104	85	52	104	69	47	104	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	58	110*	110*	72	49	110*	57	52	80	49	37	59	43	48	52	38	43	46	51
			Exposed	110*	110*	110*	110*	110*	62	110*	110*	56	110*	82	50	110*	62	46	110*	56	42	110*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	60	100*	62	51	100*	53	44	100*	47	39	82	41	34	62	37	46
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	82	100*	100*	61	100*	75	55	100*	61	50	100*	56	46	100*	47	39	77	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	61	96*	71	53	65	58	46	58	52	41	51	46	36			
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	70	96*	96*	60	96*	83*	55	69	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	63	92	92	55	92	70	49
			Exposed	92	92	92	92	92	92	92	92	92	92	92	75	92	92	62	92	92	57	92	85	52	92	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	63	97*	97*	55	97*	68	49	97*	59	43
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	56	97*	65	48	97*	56	42	76	49	36	59	43	48	52	38	43
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	77*	81*	81*	59	81*	63	52			
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	53	81*	61	50	81*	61	44	81*	53	44	81*	47	39	81*	42	34
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	63			
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	69*	76*	76*	60	76*	69*	53	67*	59	46	58	52	41			
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	70	92	92	57	92	77	50	92	61	43	89	54	38	66	48	51
			Exposed	92	92	92	92	92	92	92	92	92	92	92	75	92	92	62	92	92	57	92	85	52	92	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	75	97*	97*	61	97*	97*	55	97*	78	50	97*	62	46	97*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	72*	81*	81*	60	81*	75*	55	81*	57	47	81*	48	40	81*	42	35	63	37	46	55	49	41	49	43	36
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	70*	76*	76*	56	76*	61	48	59	53	42	51	46	37	45	41	49	40	36	43
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	89	97	67	97	97	56	97	71	48	97	58	41	77	51	36	62	45	48	55	40	43
			Exposed	97	97	97	97	97	82	97	97	63	97	97	57	97	97	57	97	97	47	97	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	64	102*	102*	58	102*	72	49	102*	57	42	80	49	37	59	43	48	52	38	43
			Exposed	102*	102*	102*	102*	102*	62	102*	102*	56	102*	82	50	102*	62	46	102*	56	42	102*	52	38	60	44	49	36	39	43	32	34	38	28	46	34	25					
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	60	89*	62	51	89*	53	44	89*	47	39	82*	41	34	62	37	46
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	82*	89*	89*	61	89*	75	55	89*	61	50	89*	56	46	89*	47	39	77*	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	61			
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	82*	55	72*	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	56	86*	65	48	86*	56	42	76*	49	36	59	43	48	52	38	43
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	59	71*	63*	52
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	58	71*	61*	50
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60*	68*	68*	53	65*	59*	46	58*	52	41
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	70	87	87	57	87	77	50	87	61	43	87	54	38	66	48	51
			Exposed	87	87	87	87	87	87	87	87	87	87	87	75	87	87	62	87	87	57	87	85	52	87	62	44	85	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	59	86*	85*	51	86*	59	44	86*	52	38	62	46	51	55	41	45
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	75*	86*	86*	61	86*	86*	55	86*	78*	50	86*	62	46	86*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	60	71*	71*	55	71*	57	47	71*	48	40	71*	42	35	63*	37	46	55	49	41	49	43	36
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	59*	53	42	51	46	37	45	41	49
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	67	91	91	56	91	71	48	91	58	41	77	51	36	62	45	48	55	40	43
			Exposed	91	91	91	91	91	82	91	91	63	91	91	57	91	85	52	91	69	47	91	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	64	95*	95*	58	95*	72	49	95*	57	42	80	49	37	59	43	48	52	38	43
			Exposed	95*	95*	95*	95*	95*	62	95*	95*	56	95*	82*	50	95*	62	46	95*	56	42	95*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	60	78*	62	51	78*	53	44	78*	47	39	78*	41	34	62	37	46
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	61	78*	78*	61	50	78*	56	46	78*	47	39	77*	40	51	60	35	44	52	46	38	46	41	34	41	36	30					
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	61			
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	60	74*	74*	55	70*	59	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36

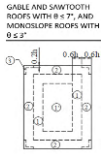
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

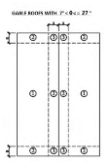
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

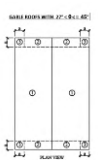
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

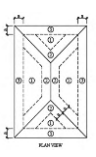












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

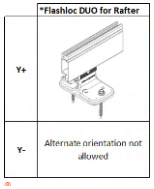
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	63	82	82	55	82	75	49			
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	63	82	82	54	82	68	47	82	58	41	77	51	36	62	45	49
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	55	77*	68*	49	77*	59	43			
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	70*	77*	77*	56	77*	65	48	77*	56	42	76*	49	36	59	43	48	52	38	43
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	59*	64*	63*	52			
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	58*	64*	61*	50	64*	53	44	64*	47	39	64*	42	34
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*			
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	63
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	70	82	82	57	82	77	50	82	61	43	82	54	38	66	48	51
			Exposed	82	82	82	82	82	82	82	82	82	82	82	75	82	82	62	82	82	57	82	82	52	82	62	44	82	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	59	77*	77*	51	77*	59	44	77*	52	38	62	46	51	55	41	45
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	75*	77*	77*	61	77*	77*	55	77*	77*	50	77*	62	46	77*	52	39	61	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	53	64*	56*	46	64*	49	41	64*	44	36
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	64*	55*	64*	57*	47	64*	48	40	64*	42	35	63*	37	46	55*	49	41	49	43	36
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	68
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	63	91*	81*	55	91*	62	49	61	55	43
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	67	86	86	56	86	71	48	86	58	41	77	51	36	62	45	48	55	40	43
			Exposed	86	86	86	86	86	82	86	86	63	86	86	57	86	85	52	86	69	47	86	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	64	85*	85*	58	85*	72	49	85*	57	42	80*	49	37	59	43	48	52	38	43	46	51	38
			Exposed	85*	85*	85*	85*	85*	62	85*	85*	56	85*	82*	50	85*	62	46	85*	56	42	85*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	60	70*	62*	51	70*	53	44	70*	47	39	70*	41	34	62*	37	46
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	55	70*	61*	50	70*	56	46	70*	47	39	70*	40	51	60	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	53	65*	59*	46	58*	52	41	51	46	36			
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	67*	55	67*	59*	47	57	51	40	49	44	35	43	38	46	38	51	41	51	46	36
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	63	78	78	55	78	75	49			
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	63	78	78	54	78	68	47	78	58	41	77	51	36	62	45	49
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	63*	70*	70*	55	70*	68*	49	70*	59	43
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	56	70*	65*	48	70*	56	42	70*	49	36	59	43	48	52	38	43
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	71	86*	86*	58	86*	63	52
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*			
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	62
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	70	78	78	57	78	77	50	78	61	43	78	54	38	66	48	51
			Exposed	78	78	78	78	78	78	78	78	78	78	78	75	78	78	62	78	78	57	78	78	52	78	62	44	78	53	38	63	46	49	55	40	43	49	35	38	43	47	34
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	59	70*	70*	51	70*	59	44	70*	52	38	62*	46	51	55	41	45
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	70*	55	70*	70*	50	70*	62*	46	70*	52	39	61*	45	50	53	39	44	46	51	38	41	45	34	36	40	30
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	62	86*	70	55
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	61	86*	63	53	86*	55	46	86*	49	41	86*	44	36
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	67	82*	82*	56	82*	82*	71	82*	58	41	77	51	36	62	45	48	55	40	43
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	63	82*	80*	55	82*	61	49	61	55	43
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	56	82	82	71	48	82	58	41	77	51	36	62	45	48	55	40	43
			Exposed	82	82	82	82	82	82	82	82	63	82	82	57	82	82	52	82	69	47	82	61	43	79	52	37	61	44	47	53	38	41	46	51	36	40	45	32	36	40	29
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	64	77*	77*	58	77*	72*	49	77*	57	42	77*	49	37	59	43	48	52	38	43	46	51	38
			Exposed	77*	77*	77*	77*	77*	62	77*	77*	56	77*	77*	50	77*	62	46	77*	56	42	77*	52	38	60	44	49	51	37	42	44	49	36	39	43	32	34	38	28	46	34	25
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	62*	51	64*	53	44	64*	47	39	64*	41	34
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	55*	64*	61*	50	64*	56*	46	64*	47	39	64*	40	51	60*	35	44	52	46	38	46	41	34	41	36	30
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	62	91*	80*	55
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	61	91*	69	53	65	58	46	57	51	41	51	46	36

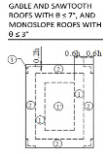
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

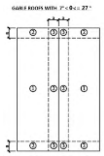
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

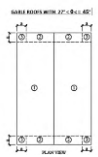
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

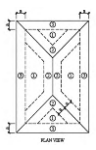












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

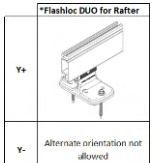
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	102	120	120	86	120	120	74	120	92	56	120	73	44	96	58	36	77	48	31	64	40	27	53	34	24
			Exposed	120	120	101	120	120	83	120	113	69	120	96	59	120	82	50	119	71	44	103	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	120	120	120	120	120	120	120	120	120	120	120	119	120	120	95	120	120	78	120	120	66	120	84	48	120	62	37	89	48	31	68	38	27	53	33	24	43	29	21
			Exposed	120	120	94	120	120	74	120	110	60	120	88	50	120	73	42	120	61	36	98	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	100	116	116	100	116	103	70	116	74	52	116	56	40	104	44	33	83	35	29	68	31	26
			Exposed	116	116	116	116	116	116	116	116	91	116	109	73	116	88	60	116	72	50	116	61	43	106	45	34	80	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	92	112*	99	69	112*	77	54	84	61	43	65	50	35	52	41	31
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	96	112*	112*	80	112*	96	67	112*	82	58	86	62	43	63	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	120	120	112	120	120	91	120	120	76	120	105	64	120	90	55	120	77	47	113	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	120	89	54	120	75	46	105	63	39	89	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	120	120	107	120	120	83	120	120	67	120	99	55	120	81	47	120	68	40	111	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	120	80	46	120	65	38	101	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14
		20-27	Interior	116	116	116	116	116	116	116	116	103	116	116	82	116	99	67	116	81	56	116	67	47	116	49	35	88	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	116	98	66	116	77	53	116	62	44	116	51	37	102	43	33	87	37	30	74	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	108	112*	112*	89	112*	107	74	112*	91	63	98	68	48	70	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	112*	112*	88	112*	102	71	112*	84	59	103	71	50	83	60	42	68	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	120	120	81	120	110	67	120	92	56	120	78	48	113	68	41	97	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	112	67	41	93	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	120	120	72	120	105	58	120	84	48	120	69	40	111	57	35	90	49	32	75	42	29	54	33	24	41	27	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	110	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	116	116	113	116	116	87	116	103	69	116	82	57	116	67	47	116	56	40	114	48	35	84	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	116	67	47	116	54	39	105	44	33	88	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	92	112*	110*	76	112*	91	63	112*	77	54	94	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	112*	90	63	110*	74	52	86	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	102	111	111	86	111	111	74	111	92	56	111	73	44	96	58	36	77	48	31	64	40	27	53	34	24
			Exposed	111	111	101	111	111	83	111	111	69	111	96	59	111	82	50	111	71	44	103	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	95	112	112	78	112	112	66	112	84	48	112	62	37	89	48	31	68	38	27	53	33	24	43	29	21
			Exposed	112	112	94	112	112	74	112	110	60	112	88	50	112	73	42	112	61	36	98	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	100	116	103	70	116	74	52	116	56	40	104	44	33	83	35	29	68	31	26
			Exposed	116	116	116	116	116	116	116	116	91	116	109	73	116	88	60	116	72	50	116	61	43	106	45	34	80	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	92	112*	99	69	112*	77	54	84	61	43	65	50	35	52	41	31
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	96	112*	112*	80	112*	96	67	112*	82	58	86	62	43	63	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	111	111	111	111	111	91	111	111	76	111	105	64	111	90	55	111	77	47	111	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	111	89	54	111	75	46	105	63	39	89	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	112	112	107	112	112	83	112	112	67	112	99	55	112	81	47	112	68	40	111	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	112	80	46	112	65	38	101	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	116	116	116	116	116	116	116	116	103	116	116	82	116	99	67	116	81	56	116	67	47	116	49	35	88	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	116	98	66	116	77	53	116	62	44	116	51	37	102	43	33	87	37	30	74	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	108	112*	112*	89	112*	107	74	112*	91	63	98	68	48	70	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	112*	112*	88	112*	102	71	112*	84	59	103	71	50	83	60	42	68	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	111	111	81	111	110	67	111	92	56	111	78	48	111	68	41	97	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	111	67	41	93	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	112	112	72	112	105	58	112	84	48	112	69	40	111	57	35	90	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	110	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	116	116	113	116	116	87	116	103	69	116	82	57	116	67	47	116	56	40	114	48	35	84	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	116	67	47	116	54	39	105	44	33	88	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	92	112*	110*	76	112*	91	63	112*	77	54	94	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	112*	90	63	110*	74	52	86	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	86	96	96	74	96	92	56	96	73	44	96	58	36	77	48	31	64	40	27	53	34	24
			Exposed	96	96	96	96	96	83	96	96	69	96	96	59	96	82	50	96	96	71	44	96	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	95	96	96	78	96	96	66	96	84	48	96	62	37	89	48	31	68	38	27	53	33	24	43	29	21
			Exposed	96	96	94	96	96	74	96	96	60	96	88	50	96	73	42	96	61	36	96	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	100	108*	103*	70	108*	74	52	108*	56	40	104*	44	33	83	35	29	68	31	26
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	91	108*	108*	73	108*	88	60	108*	72	50	108*	61	43	106*	45	34	80	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	93*	103*	99*	69	103*	77	54	84	61	43	65	50	35	52	41	31
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96*	103*	103*	80	103*	96*	67	103*	82	58	86	62	43	63	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	96	96	96	96	96	91	96	96	76	96	96	64	96	90	55	96	77	47	96	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	96	89	54	96	75	46	96	63	39	89	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	96	96	96	96	96	96	96	96	67	96	96	55	96	81	47	96	68	40	96	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	96	80	46	96	65	38	96	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	103*	108*	108*	82	108*	99	67	108*	81	56	108*	67	47	108*	49	35	88	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	108*	98	66	108*	77	53	108*	62	44	108*	51	37	102*	43	33	87	37	30	74	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	89	103*	103*	74	103*	91	63	98*	68	48	70	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	103*	103*	88	103*	102*	71	103*	84	59	103*	71	50	83	60	42	68	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	96	96	81	96	96	67	96	92	56	96	78	48	96	68	41	96	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	96	67	41	93	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	96	96	72	96	96	58	96	84	48	96	69	40	96	57	35	90	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	96	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	111*	111*	111*	111*	111*	87	111*	103	69	111*	82	57	111*	67	47	111*	56	40	111*	48	35	84	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	111*	67	47	111*	54	39	105	44	33	88	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	92	107*	107*	76	107*	91	63	107*	77	54	94	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	107*	90	63	107*	74	52	86	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18

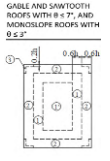
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

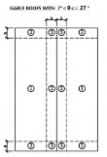
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

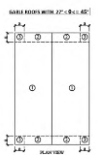
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

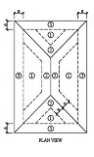












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

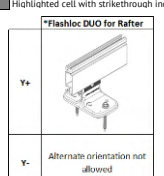
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

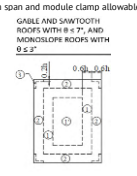
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	74	86	86	56	86	73	44	86	58	36	77	48	31	64	40	27	53	34	24
			Exposed	86	86	86	86	86	83	86	86	69	86	86	59	86	82	50	86	71	44	86	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	78	94*	94*	66	94*	84	48	94*	62	37	86	48	31	68	38	27	53	33	24	43	29	21
			Exposed	94*	94*	94*	94*	94*	74	94*	94*	60	94*	86	50	94*	73	42	94*	61	36	94*	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	70	86*	74*	52	86*	56	40	86*	44	33	83*	35	29	68	31	26
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	73	86*	86*	60	86*	72	50	86*	61	43	86*	45	34	80*	35	29	63	30	25	51	26	22	42	23	29	35	21	26
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	70*	80*	77*	54	80*	61	43	65	50	35	52	41	31
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
	C	0-7	Interior	86	86	86	86	86	86	86	86	76	86	86	64	86	86	55	86	77	47	86	68	41	86	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	86	86	54	86	75	46	86	63	39	86	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	94*	94*	94*	94*	94*	83	94*	94*	67	94*	94*	55	94*	81	47	94*	68	40	94*	57	35	77	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	94*	80	46	94*	65	38	94*	53	33	81	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	82*	86*	86*	67	86*	81*	56	86*	67	47	86*	49	35	86*	38	30	69	32	26	55	28	23	45	24	20	38	22	27
			Exposed	86*	86*	66	86*	77*	53	86*	62	44	86*	51	37	86*	43	33	86*	37	30	74*	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	74*	80*	80*	63	80*	69*	48	70*	53	37	53	42	32	42	35	28	34	31	24	30	27	22
			Exposed	80*	80*	80*	80*	80*	72*	80*	80*	59	80*	71*	50	80*	60	42	69*	52	36	57	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	86	86	81	86	86	67	86	86	56	86	78	48	86	68	41	86	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	86	67	41	86	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	86	86	72	86	86	58	86	84	48	86	69	40	86	57	35	86	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	86	57	35	85	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	94*	94*	94*	94*	94*	87*	94*	94*	69	94*	82*	57	94*	67	47	94*	56	40	94*	48	35	84*	36	30	65	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	94*	67	47	94*	54	39	94*	44	33	88*	37	30	74	33	27	64	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	76*	86*	86*	63	86*	78*	54	86*	66	46	66	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	86*	86*	63	86*	75*	52	86*	62	43	69	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	74	83	83	56	83	73	44	83	58	36	77	48	31	64	40	27	53	34	24
			Exposed	83	83	83	83	83	83	83	83	83	83	83	59	83	83	59	83	83	59	83	83	62	83	62	38	79	49	31	62	39	27	50	33	23	41	29	20	35	25	27
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	78*	82*	82*	66	82*	82*	48	82*	62	37	82*	48	31	68	38	27	53	33	24	43	29	21
			Exposed	82*	82*	82*	82*	82*	74*	82*	82*	60	82*	82*	50	82*	73*	42	82*	61	36	82*	52	33	69	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	52	67*	56	40	67*	44	33	67*	35	29	67*	31	26
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	50	67*	61*	43	67*	45	34	67*	35	29	63*	30	25	51	26	22	35	21	26
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	54*	63*	61*	43	63*	50	35	52	41	31
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	62*	43	63*	49	34	48	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	83	83	83	83	83	83	83	83	76	83	83	64	83	83	55	83	77	47	83	68	41	83	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	83	83	54	83	75	46	83	63	39	83	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	67	82*	82*	55	82*	81*	47	82*	68	40	82*	57	35	77*	43	29	57	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	82*	80*	46	82*	65	38	82*	53	33	81*	44	30	66	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	56	67*	67*	47	67*	49	35	67*	38	30	67*	32	26	55	28	23	45	24	20	38	22	27
			Exposed	67*	67*	66*	67*	67*	53	67*	62*	44	67*	51	37	67*	43	33	67*	37	30	67*	33	27	56	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	48	63*	54*	37	54*	42	32	42	35	28	34	31	24	30	27	22
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	59*	63*	63*	50	63*	60*	42	63*	52	36	58*	45	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	85	85	81	85	85	67	85	85	56	85	78	48	85	68	41	85	59	36	84	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	85	67	41	85	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	89*	89*	72	89*	89*	58	89*	84*	48	89*	69	40	89*	57	35	89*	49	32	75	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	89*	57	35	85*	47	31	69	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	69*	73*	73*	57	73*	67*	47	73*	56	40	73*	48	35	73*	36	30	65*	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	73*	67*	47	73*	54	39	73*	44	33	73*	37	30	73*	37	27	64*	30	25	55	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	63*	69*	69*	54	69*	66*	46	66*	51	35	49	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	69*	69*	63*	69*	69*	52	69*	62*	43	69*	53	37	57	45	33	48	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	56	77	73	44	77	58	36	77	48	31	64	40	27	53	34	24
			Exposed	77	77	77	77	77	77	77	77	69	77	77	59	77	77	50	77	71	44	77	62	38	77	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	66*	67*	67*	48	67*	62*	37	67*	48	31	67*	38	27	53	33	24	43	29	21
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	50	67*	67*	42	67*	61*	36	67*	52	33	67*	39	28	51	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	52*	55*	55*	40	55*	44	33	55*	35	29	55*	31	26
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	50*	55*	55*	43	55*	45	34	55*	35	29	55*	30	25	51*	26	22	42	23	29	35	21	26
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43	52*	50*	35	52*	41	31
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43	52*	49*	34	48*	39	30	38	33	26	32	29	23	29	26	20
	C	0-7	Interior	77	77	77	77	77	77	77	77	76	77	77	64	77	77	55	77	77	47	77	68	41	77	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	77	77	54	77	75	46	77	63	39	77	55	34	76	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	55	67*	67*	47	67*	67*	40	67*	57*	35	67*	43	29	57*	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	67*	67*	46	67*	65*	38	67*	53	33	67*	44	30	66*	38	27	56	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47	55*	49*	35	55*	38	30	55*	32	26	55*	28	23
			Exposed	55*	55*	55*	55*	55*	53*	55*	55*	44	55*	51*	37	55*	43	33	55*	37	30	55*	33	27	55*	28	23	44	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	37	52*	42	32	42	35	28	34	31	24	30	27	22
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	52*	42	52*	52*	36	52*	46*	33	42	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	80	80	80	80	80	67	80	80	56	80	78	48	80	68	41	80	59	36	80	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	80	67	41	80	57	35	78	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	73*	73*	72*	73*	73*	58	73*	73*	48	73*	69*	40	73*	57	35	73*	49	32	73*	42	29	54	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	73*	57	35	73*	47	31	69*	39	28	56	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	57*	60*	60*	47	60*	56*	40	60*	48	35	60*	36	30	60*	31	25	51	26	22	42	23	29	35	20	25	31	27	23
			Exposed	60*	60*	47	60*	54*	39	60*	44	33	60*	37	30	60*	33	27	60*	30	25	55*	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	54*	57*	57*	46	57*	51*	35	50*	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	57*	57*	57*	57*	57*	52*	57*	57*	43	57*	53*	37	57*	45	33	49*	39	30	41	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18

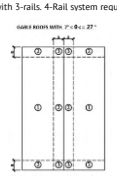
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

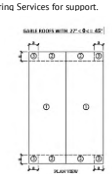
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

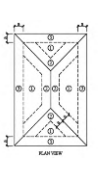
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.











**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

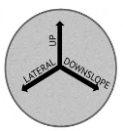
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

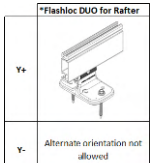
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	56	68	58	36	68	48	31	64	40	27	53	34	24
			Exposed	68	68	68	68	68	68	68	68	68	68	68	59	68	68	50	68	68	44	68	62	38	68	49	31	62	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	48	56*	56*	37	56*	48	31	56*	38	27	53*	33	24	43	29	21
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	56*	42	56*	56*	36	56*	52*	33	56*	39	28	51*	32	24	40	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	40*	47*	44*	33	47*	35	29	47*	31	26			
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	45*	34	47*	35	29	47*	30	25	47*	26	22	42*	23	29	35	21	26
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	35	44*	42*	31			
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	34	44*	39*	30	38*	33	26	32	29	23	29	26	20
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	64	68	68	55	68	68	47	68	68	41	68	53	33	67	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	68	68	54	68	68	46	68	63	39	68	55	34	68	47	31	66	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	55*	56*	56*	47	56*	56*	40	56*	56*	35	56*	43	29	56*	34	25	44	29	22	35	26	29	31	23	25	27	20	22
			Exposed	56*	56*	46	56*	56*	38	56*	53*	33	56*	44	30	56*	38	27	56*	34	25	47	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	35	47*	38	30	47*	32	26	47*	28	23	45*	24	20	38	22	27
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	37	47*	43*	33	47*	37	30	47*	33	27	47*	28	23	44*	24	30	36	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37	44*	42*	32	42*	35	28	34	31	24	30	27	22
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	42*	44*	44*	36	44*	44*	33	42*	35	28	34	30	24	29	26	21	25	23	27	22	20	24	20	27	21
	D	0-7	Interior	74	74	74	74	74	67	74	74	56	74	74	48	74	68	41	74	59	36	74	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	74	67	41	74	57	35	74	49	31	67	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	19	30	22	16	27	20	14
		7-20	Interior	62*	62*	62*	62*	62*	58*	62*	62*	48	62*	62*	40	62*	57*	35	62*	49	32	62*	42	29	54*	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	62*	57*	35	62*	47	31	62*	39	28	56*	34	25	47	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	47*	51*	51*	40	51*	48*	35	51*	36	30	51*	31	25	51*	26	22	42	23	29	35	20	25	31	27	23
			Exposed	51*	51*	47*	51*	51*	39	51*	44*	33	51*	37	30	51*	33	27	51*	30	25	51*	28	23	42	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	35	48*	40	30	38	33	26	32	29	23	29	26	20	25	23	27
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	37	48*	45*	33	48*	39	30	42*	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
70	B	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	44	59	58	36	59	56	40	59	48	27	53	34	24			
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59			
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	37	49*	48*	31	49*	38	27	49*	33	24	43*	29	21
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	42*	49*	49*	36	49*	49*	36	49*	49*	32	40	28	21	33	24	27	29	21	24	26	28	21	26	29	21
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33	40*	35*	29			
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	34	40*	35*	29	40*	30	25	40*	26	22	40*	30*	25	35*	21	26
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*			
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	38*	30	38*	38*	31
	C	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	55	59	59	47	59	59	41	59	53	33	59	42	28	54	35	25	45	30	21	37	27	29	33	24	25
			Exposed	59	59	54	59	59	46	59	59	39	59	55	34	59	47	31	59	42	28	58	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	40	49*	49*	35	49*	43*	29	49*	34	25	44*	29	22	35	26	29	31	23	25	27	20	22
			Exposed	49*	49*	46*	49*	49*	38	49*	49*	33	49*	44*	30	49*	38	27	49*	34	25	47*	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	38*	30	40*	32	26	40*	28	23	40*	24	20	38*	22	27
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*	40*	40*	33	40*	37*	30	40*	33	27	40*	28	23	40*	24	30	36*	21	26	31	27	23	27	24	20	24	22	18
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	32	38*	35*	28	34*	31	24	30	27	22
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	30	38*	38*	30	38*	33*	26	33*	29	23	29	26	20	25	23	20
	D	0-7	Interior	65	65	65	65	65	65	65	65	56	65	65	48	65	65	41	65	59	36	65	52	33	65	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	65	65	41	65	57	35	65	49	31	65	42	28	58	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	19	30	22	16	27	20	14
		7-20	Interior	54*	54*	54*	54*	54*	54*	54*	54*	48*	54*	54*	40	54*	54*	35	54*	49*	32	54*	42	29	54*	33	24	41	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	54*	54*	35	54*	47*	31	54*	39	28	54*	34	25	47*	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	45*	35	45*	36	30	45*	31	25	45*	26	22	42*	23	29	34	20	25	31	27	23
			Exposed	45*	45*	45*	45*	45*	39*	45*	44*	33	45*	37	30	45*	33	27	45*	30	25	45*	28	23	42*	23	29	34	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	40*	30	38*	33	26	32	29	23	29	26	20	25	23	27
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	37*	42*	42*	33	42*	39*	30	41*	35	27	33	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18
80	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	44	52	52	36	52	48	31	52	40	27	52	34	24
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	44	52	52	38	52	49	31	52	39	27	50	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	43*	31	43*	38*	27	43*	33	24	43*	29	21
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	36	43*	43*	33	43*	39*	28	43*	32	24	40*	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	44	54*	54*	40	54*	47*	39						
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	51*	54*	52*	43	54*	45	38	54*	40	33	54*	35	29	53*	31	26
		27-45	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*			
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	45*	51*	50*	39	49*	44*	35	44*	39	31
	C	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	41	52	52	33	52	42	28	52	35	25	45	30	21	37	27	29	33	24	25
			Exposed	52	52	52	52	52	46	52	52	39	52	52	34	52	47	31	52	42	28	52	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	35	43*	43*	29	43*	34	25	43*	29	22	35	26	29	31	23	25	27	20	22
			Exposed	43*	43*	43*	43*	43*	38*	43*	43*	33	43*	43*	30	43*	38*	27	43*	34	25	43*	31	23	36	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	46*	54*	48*	40	54*	42	35	54*	37	31	54*	33	27
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	50*	54*	54*	50*	54*	54*	45	54*	50*	41	54*	42	35	54*	36	30	54*	31	26	47*	28	23	41	24	20	37	22	18
		27-45	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46*	51*	51*	48*	51*	51*	42	51*	46*	36	46*	41	33
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	42	51*	46*	36	44*	39	31	39	35	27	34	30	24	30	27	21
	D	0-7	Interior	57	57	57	57	57	57	57	57	56	57	57	48	57	57	41	57	57	36	57	52	33	57	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	57	57	41	57	57	35	57	49	31	57	42	28	57	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	19	30	22	16	27	20	14
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	40	48*	48*	35	48*	48*	32	48*	42*	29	48*	33	24	41*	28	21	34	24	27	29	21	24	26	28	21	23	25	19
			Exposed	48*	48*	35	48*	47*	31	48*	39	28	48*	34	25	47*	31	23	40	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	36*	30	39*	31	25	39*	26	22	39*	23	29	35*	20	25	31	27	23
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	33	39*	37*	30	39*	33	27	39*	30	25	39*	28	23	39*	28	23	34*	20	25	30	26	22	26	23	19	23	20	17	20	18	15
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	36*	37*	37*	30	37*	33	26	33*	29	23	29	26	20	25	23	27
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	37*	30	37*	35*	27	33*	29	23	28	25	30	24	22	26	21	29	23	28	25	20	25	23	18

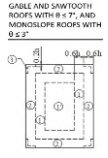
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

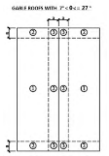
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

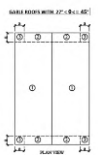
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

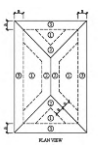












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

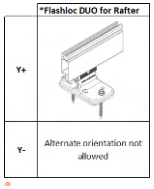
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	46	31	46	40	27	46	34	24
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	31	46	39	27	46	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	31	38*	38*	27	38*	33	24	38*	29	21
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	36*	38*	38*	33	38*	38*	28	38*	32	24	38*	28	21	33	24	27	29	21	24	26	29	21
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	47*	39
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	45*	38	48*	40	33	48*	35	29	48*	31	26
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	40*	46*	44*	35	43*	39	31
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	33	46	42	28	46	35	25	45	30	21	37	27	29	33	24	25
			Exposed	46	46	46	46	46	46	46	46	39	46	46	34	46	46	31	46	42	28	46	37	26	45	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	29	38*	34*	25	38*	29	22	35*	26	29	31	23	25	27	20	22
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	33	38*	38*	30	38*	38*	27	38*	34*	25	38*	31	23	36*	26	29	30	22	25	26	29	22	23	25	19	20	22	17	27	20	15
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	40	48*	42*	35	48*	37	31	48*	33	27			
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41	48*	42*	35	48*	36	30	48*	31	26	47*	28	23	41	24	20	37	22	18
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	37	46*	41*	33			
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	45*	36	44*	40*	31	38	35	27	34	30	24	30	27	21
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	51	51	36	51	51	33	51	41	28	51	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	51	51	41	51	51	35	51	49	31	51	42	28	51	37	26	50	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	35	42*	42*	29	42*	42*	32	42*	42*	29	42*	33	24	41*	28	21	34	24	27	29	21	24	26	28	21
			Exposed	42*	42*	35	42*	42*	31	42*	39*	28	42*	34	25	42*	31	23	40*	28	21	35	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	12
		20-27	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	45	53*	46*	38	53*	40	33	53*	35	29	53*	31	26	47*	27	23
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	46*	53*	50*	41	53*	46*	38	53*	42	35	53*	35	29	52*	30	25	45	26	22	39	23	19	34	20	17	31	18	15
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	40	49*	44*	35	43	39	31	38	34	27			
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	45*	50*	50*	41	49*	44*	35	42	38	30	37	33	26	32	29	23	28	25	20	25	23	18
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	36	42	42	31	42	40	27	42	34	24
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	31	42	39	27	42	33	23	41	29	20	35	25	27	31	22	24
		7-20	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	47*	52*	52*	41	52*	49*	37	52*	44	32
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42	52*	49*	36	52*	42	31	50*	37	27	44	32	24	39	29	21
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	38*	43*	43*	39*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	33	43*	35	29	43*	31	26
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	35	41*	39*	31
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	33	42	42	28	42	35	25	42	30	21	37	27	29	33	24	25
			Exposed	42	42	42	42	42	42	42	42	39	42	42	34	42	42	31	42	42	28	42	37	26	42	31	22	36	26	28	31	23	24	27	30	21	24	26	19	21	24	17
		7-20	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	51*	38	52*	44	33	52*	39	29	47*	34	25	41	30	22
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	50*	52*	52*	45*	52*	52*	41	52*	51*	37	52*	46*	34	52*	39	29	46*	34	25	40	29	22	35	25	18	31	22	17	27	20	15
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	42*	35	43*	37	31	43*	33	27
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	42*	35	43*	36	30	43*	31	26	43*	28	23	41*	24	20	37	22	18
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	33			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36*	41*	39*	31	39*	35	27	34	30	24	30	27	21
	D	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	46	33	46	41	28	46	34	24	42	29	20	35	25	27	31	22	24	27	30	21
			Exposed	46	46	41	46	46	35	46	46	31	46	42	28	46	37	26	46	33	23	44	30	21	35	26	27	30	22	23	26	29	20	23	25	18	30	22	16	27	20	14
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	32	38*	38*	29	38*	33	24	38*	28	21	34*	24	27	29	21	24	26	28	21	23	25	19
			Exposed	38*	38*	35*	38*	38*	31	38*	38*	28	38*	34*	25	38*	31	23	38*	28	21	35*	26	29	30	22	24	25	28	21	22	24	18	29	21	16	26	19	14	23	17	13
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	46*	38	48*	40	33	48*	35	29	48*	31	26	47*	27	23
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	41	48*	46*	38	48*	42*	35	48*	35	29	48*	30	25	45*	26	22	39	23	19	34	20	17	31	18	15
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	44*	35	43*	39	31	38	34	27
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	42*	46*	44*	35	42*	38	30	37	33	26	32	29	23	28	25	20	25	23	18

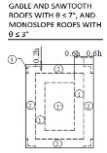
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

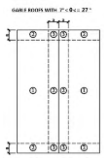
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

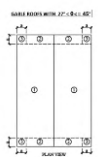
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

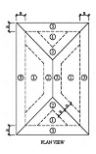












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

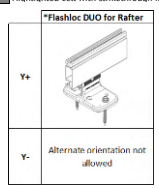
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	147	149	149	135	149	142	125	149	133	81	146	125	61	137	95	54	130	71	48
			Exposed	149	149	149	149	149	149	149	149	144	149	149	137	149	148	130	149	142	125	149	136	94	146	126	62	136	91	53	127	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	137	149	148	126	149	136	62	149	126	54	142	64	48	133	57	42
			Exposed	149	149	149	149	149	149	149	149	148	149	149	139	149	149	131	149	147	125	149	139	65	149	127	55	141	63	47	129	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	145	131	150	134	66	150	125	58	144	62	51
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	141	150	149	134	150	135	70	150	124	57	141	59	49	132	52	43	124	46	38	78	41	51
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	151	130	151	131	78	140	108	59	129	65	52	64	57	45	57	51	40
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	142	151	141	130	151	131	78	140	108	59	129	65	52	64	57	45	57	51	40
	C	0-7	Interior	149	149	149	149	149	149	149	149	148	149	149	141	149	149	134	149	145	128	149	139	120	149	129	66	140	106	56	130	73	49	121	60	43	84	53	37	64	47	50
			Exposed	149	149	134	149	144	127	149	137	99	149	130	71	145	125	61	139	102	55	133	81	51	123	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	35
		7-20	Interior	149	149	149	149	149	149	149	149	149	144	149	149	136	149	149	129	149	144	88	149	131	58	145	74	50	134	58	43	124	51	38	61	45	50	54	40	44
			Exposed	149	149	135	149	149	127	149	140	67	149	132	59	149	126	54	144	69	49	137	60	45	125	51	38	60	44	49	52	38	43	45	50	37	40	44	49	36	39	29
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	139	150	139	126	150	127	60	145	63	52	135	55	45	127	48	40	96	43	35
			Exposed	150	150	150	150	150	144	150	150	135	150	141	127	150	133	65	150	127	59	148	66	54	136	55	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	145	133	151	134	123	145	125	62	133	77	54	88	60	48	60	54	43			
			Exposed	151	151	151	151	151	151	151	151	143	151	147	135	151	140	128	151	133	104	149	128	65	134	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	149	149	149	149	149	143	149	149	135	149	146	129	149	139	120	149	133	83	149	128	65	138	98	55	128	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	149	139	117	149	132	76	146	126	62	139	104	56	133	81	51	127	65	46	119	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	149	149	149	149	149	146	149	149	137	149	149	129	149	144	87	149	136	62	149	130	57	143	65	48	131	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	149	144	84	149	134	61	149	127	55	145	72	49	137	60	45	130	55	41	124	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	147	150	150	138	150	146	131	150	138	125	150	125	58	142	60	50	132	52	43	124	46	38	76	40	50	61	36	45
			Exposed	150	150	138	150	144	129	150	135	69	150	127	60	148	66	54	141	60	49	135	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	139	151	144	132	151	142	57	141	59	49	132	52	43	124	46	38	78	41	51			
			Exposed	151	151	146	151	149	137	151	141	129	151	134	117	149	128	65	140	111	59	133	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	135	139	139	125	139	133	81	139	125	61	137	95	54	130	71	48
			Exposed	139	139	139	139	139	139	139	139	139	139	139	137	139	139	130	139	136	94	139	136	62	139	126	62	136	91	53	127	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	137	140	140	126	140	136	62	140	126	54	140	64	48	133	57	42
			Exposed	140	140	140	140	140	140	140	140	140	140	140	139	140	140	131	140	140	125	140	139	65	140	127	55	140	127	65	129	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	142	146	145	131	146	134	66	146	125	58	144	62	51
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	141	146	146	134	146	135	70	146	124	57	141	59	49	132	52	43	124	46	38	78	41	51
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	138	150	140	129	150	132	86	143	124	61
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	142	150	141	130	150	131	78	140	108	59	129	65	52	64	57	45	57	51	40
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	134	139	139	128	139	139	120	139	129	66	139	106	56	130	73	49	121	60	43	84	53	37	64	47	50
			Exposed	139	139	134	139	139	127	139	137	99	139	130	71	139	125	61	139	102	55	133	81	51	123	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	140	129	140	140	88	140	131	58	140	74	50	134	58	43	124	51	38	61	45	50
			Exposed	140	140	135	140	140	127	140	140	67	140	132	59	140	126	54	140	69	49	137	60	45	125	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	139	126	146	139	62	145	63	52	135	55	45	127	48	40
			Exposed	146	146	146	146	146	144	146	146	135	146	141	127	146	133	65	146	127	59	146	66	54	136	55	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	149	150	150	142	150	150	146	150	150	143	150	145	62	133	77	54	88	60	48	60	54	43
			Exposed	150	150	150	150	150	150	150	150	143	150	147	135	150	140	128	150	133	104	149	128	65	134	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	129	139	139	120	139	133	83	139	128	65	138	98	55	128	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	139	139	117	139	132	76	139	126	62	139	104	56	133	81	51	127	65	46	119	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	140	140	140	140	140	140	140	140	137	140	140	129	140	140	87	140	136	62	140	130	57	140	65	48	131	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	140	140	84	140	134	61	140	127	55	140	72	49	137	60	45	130	55	41	124	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	138	147	146	131	147	138	125	147	125	58	142	60	50	132	52	43	124	46	38	76	40	50	61	36	45
			Exposed	147	147	138	147	144	129	147	135	69	147	127	60	147	66	54	141	60	49	135	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	139	151	144	132	151	132	91	141	120	60	130	66	52	64	57	45	56	50	40	50	45	54
			Exposed	151	151	146	151	149	137	151	141	129	151	134	117	149	128	65	140	111	59	133	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	81	126	125	61	126	95	54	126	71	48
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	94	126	126	62	126	91	53	126	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	62	127	126	54	127	64	48	127	57	42
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	65	127	127	55	127	127	63	127	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	131	135	134	66	135	125	58	135	62	51
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	134	135	135	70	135	124	57	135	59	49	132	52	43	124	46	38	78	41	51			
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	138	140	140	140	140	140	129	140	132	86	140	124	61			
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	130	140	131	78	140	108	59	129	65	52	64	57	45	57	51	40
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	120	126	126	66	126	106	56	126	73	49	121	60	43	84	53	37	64	47	50
			Exposed	126	126	126	126	126	126	126	126	99	126	126	71	126	125	61	126	102	55	126	81	51	123	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	88	127	127	58	127	74	50	127	58	43	124	51	38	61	45	50
			Exposed	127	127	127	127	127	127	127	127	67	127	127	59	127	126	54	127	69	49	127	60	45	125	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	126	135	135	66	135	125	58	135	62	51
			Exposed	135	135	135	135	135	135	135	135	135	135	135	133	65	135	127	59	135	66	54	135	55	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35		
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	133	140	140	134	123	140	125	62	133	77	54	88	60	48	60	54	43
			Exposed	140	140	140	140	140	140	140	140	140	140	140	135	140	140	128	140	133	104	140	128	65	134	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	120	126	126	83	126	126	65	126	98	55	126	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	126	126	117	126	126	76	126	126	62	126	104	56	126	81	51	126	65	46	119	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	87	127	127	62	127	127	57	127	65	48	127	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	127	127	84	127	127	61	127	127	55	127	72	49	127	60	45	127	55	41	124	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	131	137	137	125	137	125	58	137	60	50	132	52	43	124	46	38	76	40	50	61	36	45
			Exposed	137	137	137	137	137	129	137	135	69	137	127	60	137	66	54	137	60	49	135	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	139	142	142	132	142	132	91	141	120	60	130	66	52	64	57	45	56	50	40	50	45	54
			Exposed	142	142	142	142	142	137	142	141	129	142	134	117	142	128	65	140	111	59	133	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35

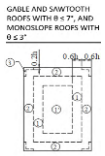
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

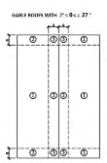
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

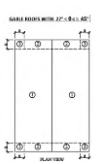
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

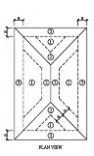












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

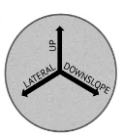
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

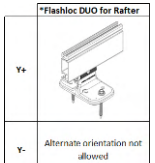
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	61	117	117	95	54	117	71	48
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	94	117	117	62	117	91	53	117	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	62	118	118	118	54	118	57	42
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	65	118	118	55	118	63	47	118	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	66	127	127	125	58	127	62	51
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	70	127	127	124	57	127	59	49	127	52	43	124	46	38	78	41	51
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	86	122	122	61
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	66	117	106	56	117	73	49	117	60	43	84	53	37	64	47	50
			Exposed	117	117	117	117	117	117	117	99	117	117	71	117	117	61	117	102	55	117	81	51	117	117	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	88	118	118	58	118	74	50	118	58	43	118	51	38	61	45	50	54	40	44
			Exposed	118	118	118	118	118	118	118	67	118	118	59	118	118	54	118	69	49	118	60	45	118	51	38	60	44	49	52	38	43	45	50	37	40	44	49	52	38	43	45	50	37	40	44	49	36	58	42	47	51	38	42
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	60	127	63	52	127	55	45	127	48	40	96	43	35
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	55	127	127	59	127	66	54	127	55	46	126	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	104	122	122	65	122	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	83	117	117	65	117	98	55	117	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	117	117	117	117	117	76	117	117	62	117	104	56	117	81	51	117	65	46	117	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	87	118	118	62	118	118	57	118	65	48	118	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	118	118	84	118	118	61	118	118	55	118	72	49	118	60	45	118	55	41	118	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	125	129	129	125	58	129	60	50	129	52	43	124	46	38	76	40	50	61	36	45
			Exposed	129	129	129	129	129	129	129	69	129	127	60	129	66	54	129	60	49	129	54	45	124	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	91	127	120	60	127	66	52	64	57	45	56	50	40	50	45	54
			Exposed	127	127	127	127	127	127	127	127	127	127	117	127	127	65	127	111	59	127	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	61	115	115	95	54	115	71	48
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	53	115	61	44	48
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	62	115	115	54	115	64	48	115	57	42
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	66	113*	113*	58	113*	62	51	113*	113*	113*
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	70	113*	113*	59	113*	113*	113*	52	113*	113*	46	113*	113*	113*	78	41	51
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	66	115	106	56	115	73	49	115	60	43	84	53	37	64	47	50
			Exposed	115	115	115	115	115	115	115	99	115	115	71	115	115	61	115	102	55	115	81	51	115	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	58	115	74	50	115	58	43	115	51	38	61	45	50	54	40	44
			Exposed	115	115	115	115	115	115	115	67	115	115	59	115	115	54	115	69	49	115	60	45	115	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	60	113*	63	52	113*	55	45	113*	48	40
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	65	113*	113*	59	113*	66	54	113*	55	46	113*	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	65	109*	80	55	72	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	83	117	117	65	117	98	55	117	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	117	117	117	117	117	76	117	117	62	117	104	56	117	81	51	117	65	46	117	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	87	117	117	62	117	117	57	117	65	48	117	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	117	117	84	117	117	61	117	117	55	117	72	49	117	60	45	117	55	41	117	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	58	118	60	50	118	52	43	118	46	38	76	40	50	61	36	45
			Exposed	118	118	118	118	118	118	118	69	118	118	60	118	66	54	118	60	49	118	54	45	118	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	91	114*	114*	60	114*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	65	114*	114*	59	114*	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	61	107	107	95	54	107	71	48
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	94	107	107	62	107	91	53	107	65	46	102	57	40	73	50	53	61	44	48
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	62	112*	112*	54	112*	64	48	112*	57	42
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	65	112*	112*	55	112*	63	47	112*	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	66	102*	102*	58	102*	62	51	102*	102*	102*
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	70	102*	102*	57	102*	59	49	102*	52	43	102*	46	38	78	41	51
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	89*	99*	99*	61	99*	99*	99*
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	78	99*	99*	59	99*	65	52	64	57	45	57	51	40
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	66	107	106	56	107	73	49	107	60	43	84	53	37	64	47	50
			Exposed	107	107	107	107	107	107	107	99	107	107	71	107	107	61	107	102	55	107	81	51	107	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	88	112*	112*	58	112*	74	50	112*	58	43	112*	51	38	61	45	50	54	40	44
			Exposed	112*	112*	112*	112*	112*	112*	112*	67	112*	112*	59	112*	112*	54	112*	69	49	112*	60	45	112*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	63	102*	102*	55	102*	48	40	96*	43	35
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	65	102*	102*	59	102*	66	54	102*	55	46	102*	47	39	81	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	77	54	93*	60	48	60	54	43
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	83	111	111	65	111	98	55	111	67	47	104	57	41	73	50	53	60	44	47	54	39	42
			Exposed	111	111	111	111	111	76	111	111	62	111	104	56	111	81	51	111	65	46	111	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	28
		7-20	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	87	111	111	62	111	111	57	111	65	48	111	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	111	111	84	111	111	61	111	111	55	111	72	49	111	60	45	111	55	41	111	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	58	107*	60	50	107*	52	43	107*	46	38	76	40	50	61	36	45
			Exposed	107*	107*	107*	107*	107*	107*	107*	69	107*	107*	60	107*	66	54	107*	60	49	107*	54	45	107*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	95*	104*	104*	60	104*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	65	104*	104*	59	104*	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35

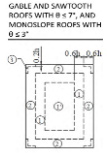
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

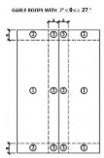
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

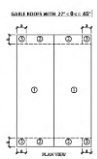
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

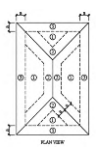












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

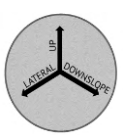
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

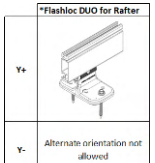
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	61	98	95	54	98	71	48
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	94	98	98	62	98	91	53	98	65	46	98	57	40	73	50	53	61	44	48
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	54	103*	64	48	103*	57	42
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	65	103*	103*	55	103*	63	47	103*	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	66	91*	91*	58	91*	62	51
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	70	91*	91*	57	91*	59	49	91*	52	43	91*	46	38	78*	41	51
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	61
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	78*	86*	86*	59	86*	65	52	64	57	45	57	51	40
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	66	98	98	56	98	73	49	98	60	43	84	53	37	64	47	50
			Exposed	98	98	98	98	98	98	98	98	98	98	98	71	98	98	98	98	98	98	98	98	55	98	81	51	98	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	88	103*	103*	58	103*	74	50	103*	58	43	103*	51	38	61	45	50	54	40	44
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	67	103*	103*	59	103*	103*	54	103*	69	49	103*	60	45	103*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	26
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	60	91*	63	52	91*	55	45	91*	48	40	91*	43	35
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	65	91*	91*	59	91*	66	54	91*	91*	59	91*	47	39	81*	41	51	61	36	45	47	39	48	43	35
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	62	86*	77*	54	86*	60	48	60	54	43			
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	65	86*	80*	55	75*	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	83	103	103	65	103	98	55	103	67	47	103	57	41	73	50	53	60	44	47	54	39	42
			Exposed	103	103	103	103	103	76	103	103	62	103	103	56	103	81	51	103	65	46	103	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	26
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	87	109*	109*	62	109*	109*	57	109*	65	48	109*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	109*	109*	84	109*	109*	61	109*	109*	55	109*	72	49	109*	60	45	109*	55	41	109*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	58	99*	60	50	99*	52	43	99*	46	38	76	40	50	61	36	45
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	69	99*	99*	60	99*	66	54	99*	60	49	99*	54	45	99*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	91*	94*	94*	60	94*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	65	94*	94*	59	94*	75	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	61	91	91	54	91	71	48
			Exposed	91	91	91	91	91	91	91	91	91	91	91	71	91	91	61	91	91	55	91	81	51	91	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	55	95*	63	42	95*	55	41	67	48	36	58	42	47	51	38	42
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	66	79*	79*	58	79*	62	51
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	59	79*	52	43	79*	46	38	78*	41	51
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	61
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	59	75*	65*	52	64*	57	45	57	51	40
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	66	91	91	56	91	73	49	91	60	43	84	53	37	64	47	50
			Exposed	91	91	91	91	91	91	91	91	91	91	91	71	91	91	61	91	91	55	91	81	51	91	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	58	95*	74	50	95*	58	43	95*	51	38	61	45	50	54	40	44
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	67	95*	95*	59	95*	95*	54	95*	69	49	95*	60	45	95*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	65	79*	79*	59	79*	66	54	79*	55	46	79*	47	39	79*	41	51	61	36	45	54	48	40	48	43	35
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65*	75*	75*	55	72*	59	47	57	51	41	50	45	36	44	40	48	39	53	42
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	83	96	96	65	96	96	55	96	67	47	96	57	41	73	50	53	60	44	47	54	39	42
			Exposed	96	96	96	96	96	76	96	96	62	96	96	56	96	81	51	96	65	46	96	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	26
		7-20	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	87	101*	101*	62	101*	101*	57	101*	65	48	101*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	101*	101*	84	101*	101*	61	101*	101*	55	101*	72	49	101*	60	45	101*	55	41	101*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	58	87*	60	50	87*	52	43	87*	46	38	76*	40	50	61	36	45
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	69	87*	87*	60	87*	66	54	87*	60	49	87*	54	45	87*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	60	82*	66	52	64	57	45	56	50	40	50	45	54
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	59	82*	76*	54	64	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	61	86	86	54	86	71	48
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	81	86	86	61	86	86	54	86	71	48	86	86	53	61	44	48
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	65	84*	84*	55	84*	63	47	84*	55	41	67	48	36	58	42	47
		20-27	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	65	101*	101*	57	101*	61	51
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	81	98*	98*	61			
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	66	86	86	56	86	73	49	86	60	43	84	53	37	64	47	50
			Exposed	86	86	86	86	86	86	86	86	86	86	86	71	86	86	61	86	86	55	86	81	51	86	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	33
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	67	84*	84*	59	84*	84*	54	84*	69	49	84*	60	45	84*	51	38	60	44	49	52	38	43	45	50	37	40	44	33	36	39	29
		20-27	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	59	101*	62	51	101*	54	45	101*	48	40	90*	43	35
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	64
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	64
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	83	90	90	65	90	90	55	90	67	47	90	57	41	73	50	53	60	44	47	54	39	42
			Exposed	90	90	90	90	90	76	90	90	62	90	90	56	90	81	51	90	65	46	90	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	26
		7-20	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	87*	93*	93*	62	93*	93*	57	93*	65	48	93*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	93*	93*	84*	93*	93*	61	93*	93*	55	93*	72	49	93*	60	45	93*	55	41	93*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	58	77*	60	50	77*	52	43	77*	46	38	76*	40	50	61	36	45
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	69	77*	77*	60	77*	66	54	77*	60	49	77*	54	45	77*	46	38	72	40	49	58	52	43	51	45	38	45	40	33	40	36	29
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	60	73*	66*	52	64*	57	45	56	50	40	50	45	54
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	65*	73*	73*	59	73*	73*	54	65*	58	46	55	50	39	48	43	51	42	38	45	37	50	40	50	45	35

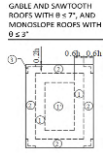
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

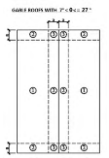
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

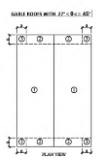
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

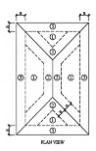












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	PRO SERIES	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

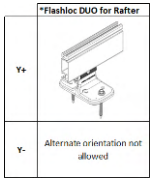
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	61	81	81	54	81	71	48
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	62	81	81	53	81	65	46	81	57	40	73	50	53	61	44	48
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62	75*	75*	54	75*	64	48	75*	57	42
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	65*	75*	75*	55	75*	63	47	75*	55	41	67*	48	36	58	42	47	51	38	42
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	57	93*	61	51
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	81*	89*	89*	61
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	66	81	81	56	81	73	49	81	60	43	81	53	37	64	47	50
			Exposed	81	81	81	81	81	81	81	81	81	81	81	71	81	81	61	81	81	55	81	81	51	81	61	43	80	52	37	62	45	48	54	39	42	47	52	37	42	46	88
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	58	75*	74*	50	75*	58	43	75*	51	38	61	45	50	54	40	44
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	67*	75*	75*	59	75*	75*	54	75*	69*	49	75*	60	45	75*	51	38	60	44	49	52	38	43	45	50	37	40	44	88	36	39	88
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	60	93*	65	54
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	59	93*	62	51	93*	54	45	93*	48	40
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	64
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	74	54	78*	60	48
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	83	85	85	65	85	85	55	85	67	47	85	57	41	73	50	53	60	44	47	54	39	42
			Exposed	85	85	85	85	85	76	85	85	62	85	85	56	85	81	51	85	65	46	85	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	26
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	62	83*	83*	57	83*	65	48	83*	56	41	70	48	36	58	42	47	51	37	42	45	50	37
			Exposed	83*	83*	83*	83*	83*	61	83*	83*	55	83*	72*	49	83*	60	45	83*	55	41	83*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	65	100*	100*	57	100*	61	50	100*	54	45
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	89*	100*	100*	58	100*	60	49	100*	52	43	100*	45	38	73	40	33	60	36	29
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	65	98*	98*	80	98*	98*	60	98*	73	54
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	86*	98*	98*	59	98*	65	52	63	57	45	56	50	40	50	45	35
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	61	77	77	54	77	71	48
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	62	77	77	53	77	65	46	77	77	53	73	50	53	61	44	48
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	64
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	61	100*	100*	54	100*	64	47	100*	57	42
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	65	85*	85*	65	85*	85*	57	85*	61	51
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	66	77	77	56	77	73	49	77	60	43	77	53	37	64	47	50
			Exposed	77	77	77	77	77	77	77	77	77	77	77	71	77	77	61	77	77	55	77	77	51	77	61	43	77	52	37	62	45	48	54	39	42	47	52	37	42	46	88
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	65	100*	100*	57	100*	76	50	100*	60	44
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	79	100*	100*	57	100*	69	49	100*	57	43	88*	50	37	60	44	33	54	39	29
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	60	85*	65	54
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	59	85*	62	51	85*	54	45	85*	48	40	85*	43	35
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	64
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	62	80*	74*	54	77*	60	48	59	53	42
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	65	81	81	55	81	67	47	81	57	41	73	50	53	60	44	47	54	39	42
			Exposed	81	81	81	81	81	76	81	81	62	81	81	56	81	81	51	81	65	46	81	60	42	75	50	54	59	43	46	51	37	40	45	49	35	40	44	31	53	39	26
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	62	75*	75*	57	75*	65*	48	75*	56	41	70*	48	36	58	42	47	51	37	42	45	50	37
			Exposed	75*	75*	75*	75*	75*	61	75*	75*	55	75*	72*	49	75*	60	45	75*	55	41	75*	50	37	58	43	48	50	37	41	43	48	36	38	42	31	50	37	27	45	33	24
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	65	93*	93*	57	93*	61	50	93*	54	45
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	58	93*	60	49	93*	52	43	93*	45	38	73	40	33	60	36	29
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	64
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	85*	89*	89*	59	89*	65	52	63	57	45	56	50	40	50	45	35

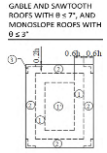
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

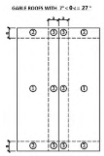
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

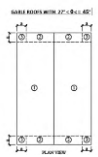
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

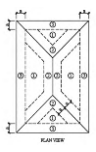












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

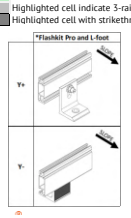
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	120	127	127	114	127	121	100	127	122	100	82	115	92	76	105	85	70	96	79	58
			Exposed	127	127	125	127	127	118	127	127	111	127	122	101	127	117	95	127	111	89	125	103	85	115	92	76	103	84	68	94	77	55	86	71	45	80	60	39	74	51	34
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	119	127	127	113	127	121	96	127	109	87	123	96	79	114	88	72	100	81	60	92	75	49
			Exposed	127	127	125	127	127	117	127	127	108	127	123	98	127	116	91	127	108	86	127	99	81	115	88	73	99	80	58	90	72	46	82	60	39	75	49	34	69	41	46
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	116	128	117	99	128	103	90	126	93	82	119	85	76	110	79	69			
			Exposed	128	128	128	128	128	128	128	128	125	128	128	117	128	123	108	128	117	99	128	108	93	127	94	83	117	84	75	106	77	64	96	70	50	88	56	41	82	46	37
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	124	129	125	114	129	116	99	122	105	91	114	95	84	100	88	78			
			Exposed	129	129	129	129	129	129	129	129	129	129	129	125	129	129	119	129	124	113	129	119	103	123	106	92	112	94	83	97	86	76	88	79	68	81	73	55	75	65	45
	C	0-7	Interior	127	127	127	127	127	121	127	127	115	127	126	106	127	120	98	127	115	93	127	108	88	118	96	79	108	87	72	97	80	59	89	74	48	83	65	41	77	55	36
			Exposed	127	120	98	127	113	91	126	104	85	120	97	80	114	91	75	107	86	71	99	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	127	127	127	127	127	121	127	127	114	127	127	102	127	120	95	127	114	89	127	104	84	119	91	75	104	83	64	93	75	50	85	67	41	78	53	36	72	44	48
			Exposed	127	120	95	127	111	88	127	100	82	120	93	76	114	87	72	103	82	63	96	77	54	86	68	41	77	52	36	70	41	46	68	48	36	63	43	32			
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	121	128	127	114	128	120	104	128	114	96	128	97	86	121	88	77	112	80	70	99	73	55	91	62	44	85	50	39
			Exposed	128	127	114	128	110	93	128	99	87	126	93	82	120	87	77	115	82	72	100	73	56	90	60	43	83	47	37	76	39	49	70	49	35	43	58	46	39		
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	122	129	128	116	129	122	109	127	111	95	116	98	86	101	89	78	92	82	72	84	76	60	78	70	49			
			Exposed	129	129	122	129	126	115	129	119	104	129	113	96	122	104	90	115	97	85	106	92	80	92	82	72	83	75	58	76	66	46	67	53	39	54	44	35	43	39	46
	D	0-7	Interior	127	127	117	127	127	109	127	121	99	127	115	93	127	108	88	123	100	83	118	95	78	105	85	71	95	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	127	107	87	121	99	81	115	92	76	107	87	72	99	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	127	127	116	127	127	105	127	121	96	127	114	90	127	104	84	124	96	79	118	91	75	101	81	61	91	73	47	82	61	39	75	49	34	68	41	46	55	36	41
			Exposed	127	103	84	122	95	78	115	88	72	104	82	64	96	77	54	90	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	128	128	128	128	128	123	128	128	116	128	121	105	128	114	96	128	104	90	128	96	85	119	86	76	108	78	66	96	71	51	88	56	41	82	45	36	76	39	49
			Exposed	128	114	96	128	101	89	127	94	83	120	87	77	115	82	72	107	77	64	99	73	55	89	57	42	81	44	36	74	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	129	129	129	129	129	129	129	123	129	128	117	129	122	109	129	116	100	126	110	94	114	96	84	98	87	76	89	80	69	81	73	55	75	64	45	67	53	39		
			Exposed	129	122	108	129	115	98	123	106	91	116	97	86	106	92	80	97	86	76	91	82	72	82	74	56	74	62	43	62	50	37	48	41	49	40	36	44	36	49	39
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	119	100	119	112	90	119	100	82	115	92	76	105	85	70	96	79	58
			Exposed	119	119	119	119	119	118	119	119	119	119	119	101	119	119	117	119	119	99	119	119	103	115	92	76	103	84	68	94	76	55	86	71	45	80	60	39	74	51	34
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	113	119	119	96	119	109	87	119	96	79	114	88	72	100	81	60	92	75	49
			Exposed	119	119	119	119	119	117	119	119	108	119	119	98	119	116	91	119	108	86	119	99	81	115	88	73	99	80	58	90	72	46	82	60	39	75	49	34	69	41	46
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	116	124	117	99	124	103	90	124	93	82	119	85	76	110	79	69
			Exposed	124	124	124	124	124	124	124	124	124	124	124	117	124	123	108	124	117	99	124	108	93	124	94	83	117	84	75	106	77	64	96	70	50	88	56	41	82	46	37
		27-45	Interior	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	124	130*	125	114	130*	116	99	122	105	91	114	95	84	100	88	78
			Exposed	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	125	130*	130*	119	130*	124	113	130*	119	103	123	106	92	112	94	83	97	86	76	88	79	68	81	73	55	75	65	45
	C	0-7	Interior	119	119	119	119	119	119	119	119	115	119	119	106	119	119	98	119	115	93	119	108	88	118	96	79	108	87	72	97	80	59	89	74	48	83	65	41	77	55	36
			Exposed	119	119	98	119	119	91	119	104	85	119	97	80	114	91	75	107	86	71	99	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	119	119	119	119	119	119	119	119	114	119	119	102	119	119	95	119	114	89	119	104	84	119	91	75	104	83	64	93	75	50	85	67	41	78	53	36	72	44	48
			Exposed	119	119	95	119	111	88	119	100	82	119	93	76	114	87	72	103	82	63	96	77	54	86	68	41	77	52	36	70	41	46	55	36	41	45	48	36	39	43	32
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	121	124	124	114	124	120	104	124	114	96	124	97	86	121	88	77	112	80	70	99	73	55	91	62	44	85	50	39
			Exposed	124	124	114	124	119	101	124	110	93	124	99	87	124	93	82	120	87	77	115	82	72	100	73	56	90	60	43	83	47	37	76	39	49	70	35	43	58	46	39
		27-45	Interior	130*	130*	130*	130*	130*	130*	130*	130*	130*	130*	129*	130*	130*	122	130*	127	116	130*	122	109	127	111	95	116	98	86	101	89	78	92	82	72	84	76	60	78	70	49		
			Exposed	130*	130*	122	130*	126	115	130*	119	104	129*	113	96	122	104	90	115	97	85	106	92	80	92	82	72	83	75	58	76	66	46	67	53	39	54	44	35	43	39	46
	D	0-7	Interior	119	119	117	119	119	109	119	119	99	119	115	93	119	108	88	119	100	83	118	95	78	105	85	71	95	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	119	107	87	119	99	81	115	92	76	107	87	72	99	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	119	119	116	119	119	105	119	119	96	119	114	90	119	104	84	119	96	79	118	91	75	101	81	61	91	73	47	82	61	39	75	49	34	68	41	46	55	36	41
			Exposed	119	103	84	119	95	78	115	88	72	104	82	64	96	77	54	90	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	126	126	126	126	126	123	126	126	116	126	121	105	126	114	96	126	104	90	126	96	85	119	86	76	108	78	66	96	71	51	88	56	41	82	45	36	76	39	49
			Exposed	126	114	96	126	101	89	126	94	83	120	87	77	115	82	72	107	77	64	99	73	55	89	57	42	81	44	36	74	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	128	128	128	128	128	128	128	128	123	128	128	117	128	122	109	128	116	100	126	110	94	114	96	84	98	87	76	89	80	69	81	73	55	75	64	45	67	53	39		
			Exposed	128	122	108	128	115	98	123	106	91	116	97	86	106	92	80	97	86	76	91	82	72	82	74	56	74	62	43	62	50	37	48	41	49	40	36	44	36	49	39
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	100	105	105	90	105	100	82	105	92	76	105	85	70	96	79	58			
			Exposed	105	105	105	105	105	105	105	105	105	105	105	101	105	105	95	105	105	89	105	103	85	105	92	76	103	84	68	94	77	55	86	71	45	80	60	39	74	51	34
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	96	105	105	87	105	96	79	105	88	72	100	81	60	92	75	49
			Exposed	105	105	105	105	105	105	105	105	105	105	105	98	105	105	91	105	105	86	105	99	81	105	88	73	99	80	58	90	72	46	82	60	39	75	49	34	69	41	46
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	99*	115*	103*	90	115*	93*	82	115*	85	76	110*	79	69
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	108*	115*	115*	99*	115*	108*	93*	115*	94*	83	115*	84	75	106*	77	64	96*	70	50	88	56	41	82	46	37
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	105*	91*	111*	95*	84	100*	88*	78		
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	103*	111*	106*	92*	111*	94*	83	97*	86*	76	88*	79	68	81	73	55	75	65	45
	C	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	98	105	105	93	105	105	88	105	96	79	105	87	72	97	80	59	89	74	48	83	65	41	77	55	36
			Exposed	105	105	98	105	105	91	105	104	85	105	97	80	105	91	75	105	86	71	99	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	102	105	105	95	105	105	89	105	104	84	105	91	75	104	83	64	93	75	50	85	67	41	78	53	36	72	44	48
			Exposed	105	105	95	105	105	88	105	100	82	105	93	76	105	87	72	103	82	63	96	77	54	86	68	41	77	52	36	70	41	46	55	36	41	45	48	36	39	43	32
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	104*	115*	115*	114*	96*	115*	97*	86	115*	88	77	112*	80	70	99*	73	55	91	62	44	85	50	39		
			Exposed	115*	115*	114*	115*	115*	101*	115*	110*	93*	115*	99*	87	115*	93*	82	115*	87	77	115*	82	72	100*	73	56	90	60	43	83	47	37	76	39	49	70	35	43	58	46	39
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	109*	111*	111*	95*	111*	98*	86*	101*	89*	78	92*	82	72	85*	76	60	78	70	49		
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	104*	111*	111*	96*	111*	104*	90*	111*	97*	85*	106*	92*	80	92*	82	72	83	75	58	76	66	46	67	53	39	54	44	35	43	39	46
	D	0-7	Interior	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	100	83	105	95	78	105	85	71	95	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	105	105	87	105	99	81	105	92	76	105	87	72	99	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	105	105	105	105	105	105	105	105	96	105	105	90	105	104	84	105	96	79	105	91	75	101	81	61	91	73	47	82	61	39	75	49	34	68	41	46	55	36	41
			Exposed	105	103	84	105	95	78	105	88	72	104	82	64	96	77	54	90	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	116*	117*	117*	105*	117*	114*	96	117*	104*	90	117*	96	85	117*	86	76	108*	78	66	96	71	51	88	56	41	82	45	36	76	39	49
			Exposed	117*	114*	96	117*	101*	89	117*	94	83	117*	87	77	115*	82	72	107*	77	64	99	73	55	89	57	42	81	44	36	74	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	116*	100*	116*	110*	94*	114*	96*	84	98*	87	76	89	80	69	81	73	55	75	64	45	67	53	39		
			Exposed	116*	116*	108*	116*	115*	98*	116*	106*	92*	116*	97*	86	106*	92*	80	97*	86	76	92*	82	72	82	74	56	74	62	43	62	50	37	48	41	49	40	36	44	36	49	39

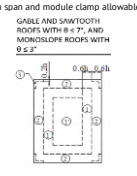
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

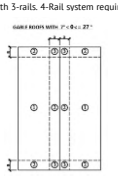
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

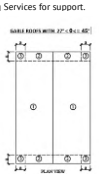
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

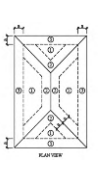












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

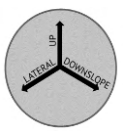
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

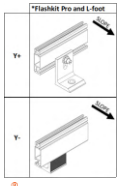
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	82	94	92	76	94	85	70	94	79	58
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	89	94	94	85	94	92	76	94	84	68	94	77	55	86	71	45	80	60	39	74	51	34
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	87*	95*	95*	79	95*	88*	72	95*	81	60	92*	75	49
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	91*	95*	95*	86*	95*	95*	81	95*	88*	73	95*	80	58	90*	72	46	82*	60	39	75	49	34	69	41	46
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	82*	88*	85*	76*	88*	79*	69*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	83*	88*	84*	75*	88*	77*	64	88*	70*	50	88*	56	41	82*	46	37
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76*	81*	81*	73*	81*	73*	55	75*	65*	45
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	79	94	87	72	94	80	59	89	74	48	83	65	41	77	55	36
			Exposed	94	94	94	94	94	91	94	94	85	94	94	80	94	91	75	94	86	71	94	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	89*	95*	95*	84*	95*	91*	75	95*	83*	64	93*	75	50	85*	67	41	78	53	36	72	44	48
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	82*	95*	93*	76	95*	87*	72	95*	82*	63	95*	77	54	86*	68	41	77	52	36	70	41	46	55	36	41	45	48	36	39	43	32
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	77*	88*	80*	70*	88*	73*	55	88*	62	44	85*	50	39
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	87*	88*	88*	82*	88*	87*	77*	88*	82*	72*	88*	73*	56	88*	60	43	83*	47	37	76*	39	49	70*	35	43	58	46	30
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78*	81*	81*	72*	81*	76*	60	78*	70*	49
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	81*	81*	72*	81*	75*	58	76*	66*	46	67*	53	39	54	44	35	43	39	46
	D	0-7	Interior	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	83	94	94	78	94	85	71	94	85	80	60	94	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	94	94	87	94	94	81	94	92	76	94	87	72	94	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	95*	84	95*	95*	79	95*	91*	75	95*	81	61	91*	73	47	82	61	39	75	49	34	68	41	46	55	36	41
			Exposed	95*	95*	84	95*	95*	78	95*	88*	72	95*	82	64	95*	77	54	90*	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	85*	96*	86*	76*	96*	78*	66	96*	71	51	88*	56	41	82*	45	36	76*	39	49
			Exposed	96*	96*	96*	96*	96*	89*	96*	94*	83*	96*	87*	77*	96*	82*	72	96*	77*	64	96*	73	55	89*	57	42	81*	44	36	74*	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	87*	76*	88*	80*	69*	81*	73*	55	75*	64	45	67	53	39
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	80*	88*	86*	76*	88*	82*	72*	82*	74*	56	74*	62	43	62	50	37	48	41	49	40	36	44	36	49	39
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	76	90	85	70	90	79	58
			Exposed	90	90	90	90	90	90	90	90	85	90	90	80	90	90	75	90	86	71	90	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	79*	83*	83*	72*	83*	81*	60	83*	75*	49
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*	83*	82*	60	39	75*	49	34	69*	41	46
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	50	68*	56*	41	68*	46	37
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	45
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	79	90	87	72	90	80	59	89	74	48	83	65	41	77	55	36
			Exposed	90	90	90	90	90	90	90	90	85	90	90	80	90	90	75	90	86	71	90	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	75*	83*	83*	64*	83*	75*	50	83*	67*	41	78*	53	36	72*	44	48
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	82*	83*	83*	76*	83*	83*	72*	83*	82*	63	83*	77*	54	83*	68*	41	77*	52	36	70*	41	46	55	36	41	45	48	36	39	43	32
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	55*	68*	62*	44	68*	50	39
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	56*	68*	60*	43	68*	47	37	68*	39	49	68*	35	43	58*	46	39
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	64*	50*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	58*	64*	64*	46	64*	53*	39	54*	44	35	43	39	46
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	88	93	93	83	93	93	78	93	85	71	93	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	93	93	87	93	93	81	93	92	76	93	87	72	93	82	63	93	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	90*	92*	92*	84*	92*	92*	79*	92*	91*	75*	92*	81*	61	91*	73*	47	82*	61	39	75*	49	34	68	41	46	55	36	41
			Exposed	92*	92*	84*	92*	92*	78*	92*	88*	72	92*	82*	64	92*	77*	54	90*	73*	46	85*	66	41	76*	49	35	66	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64	75*	75*	55	75*	57	42	75*	44	36	74*	37	47	64*	49	41	53	44	36	44	39	32
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	69*	70*	70*	55*	70*	64*	45	67*	53	39
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	56*	70*	62*	43	62*	50	37	48	41	49	40	36	44	36	49	39
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	76	84	84	70	84	79	58
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	76	84	84	84	84	84	77	55	84	71	45	80	60	39	74	51	34
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60*	68*	68*	49
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	58*	68*	60*	39	68*	49	34	68*	41	46
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	45*
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	79	84	84	74	84	80	59	84	74	48	83	65	41	77	55	36
			Exposed	84	84	84	84	84	84	84	84	84	84	84	80	84	84	75	84	84	71	84	82	63	84	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	41	68*	53*	36	68*	44	48
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*	68*	68*	54*	68*	68*	41	68*	52	36	68*	41	46	55*	36	41	45	48	36	39	43	32
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	39
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	43	56*	47*	37	56*	39	49	56*	35	43	56*	46	30
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	87	78	87	85	71	87	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	87	87	87	87	87	81	87	87	76	87	87	72	87	82	63	87	77	55	87	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	61*	75*	73*	47	75*	61*	39	75*	49	34	68*	41	46	55	36	41
			Exposed	75*	75*	75*	75*	75*	75*	75*	72*	75*	75*	64*	75*	75*	54	75*	73*	46	75*	66*	41	75*	51	35	39	41	46	34	36	40	30	49	36	27						
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	51*	62*	56*	41	62*	45	36	62*	39	49
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	57*	42	62*	44	36	62*	37	47	62*	49	41	53*	44	36	44	39	32
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	55*	58*	58*	45*	58*	53*	39
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	43	58*	50*	37	48*	41	49	40	36	44	36	49	39

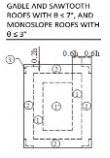
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

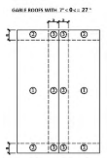
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

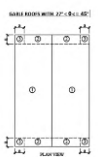
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

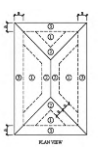












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

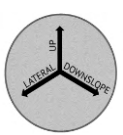
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

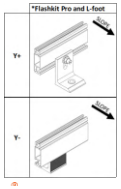
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	77	77	70	77	77	58			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	77	77	68	77	77	55	77	71	45	77	60	39	74	51	34
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	46*	58*	58*	39	58*	49*	34	58*	41	46
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	48*	37*
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	77	77	59	77	74	48	77	65	41	77	55	36
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	63	77	74	49	77	64	40	75	52	35	67	43	46	56	38	41	47	34	36	
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	50*	58*	58*	41	58*	53*	36	58*	44	48
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	41	58*	52*	36	58*	41	46	55*	36	41	45*	48	36	39	43	32	
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	39*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	37*	48*	48*	39	49	48*	35	43	48*	46	39
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	46
70	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	81	81	71	81	78	56	81	71	45	80	60	39	74	50	34	67	43	46
			Exposed	81	81	81	81	81	81	81	81	76	81	81	72	81	81	63	81	77	55	81	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	47	64*	61*	39	64*	49*	34	64*	41	46	55*	36	41
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	54*	64*	64*	46	64*	64*	41	64*	49*	35	64*	40	45	51*	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41*	52*	45*	36	52*	39	49
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42*	52*	44*	36	52*	37	47	52*	49	41	52*	44	36	44*	39	32
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	45*	50*	50*	39*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43*	50*	50*	37	48*	41*	49	40*	36	44	36	49	39
	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	45	72	60	39	72	51	34
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	49*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	39*	50*	41*	46
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	59	72	72	48	72	65	41	72	55	36
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	63	72	72	49	72	64	40	72	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41*	50*	50*	36	50*	44*	48
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41*	50*	50*	36	50*	41*	46	50*	36	41	45*	48	36	39*	43	32
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	39*	49*	41*	35*	43	41*	46	39
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	46*
80	D	0-7	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	56	75	71	45	75	60	39	74	50	34	67	43	46
			Exposed	75	75	75	75	75	75	75	75	75	75	75	72	75	75	63	75	75	55	75	73	48	75	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47*	55*	55*	39	55*	49*	34	55*	41	46	55*	36	41
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	46*	55*	55*	41	55*	49*	35	55*	40	45	51*	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	45*	36	46*	39*	49
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	44*	36	46*	37*	47	46*	49	41	46*	44	36	44*	39	32
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	41*	49	40*	36*	44	36*	49	39
	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	34
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	46
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	48	67	65	41	67	55	36
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	67	49	67	64	40	67	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	36*	44*	41*	48
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	36*	44*	41*	46	44*	36*	41	44*	48	36	39*	43	32
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*	36*	35*	43	36*	46	30
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	46*
	D	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	56	71	71	45	71	60	39	71	50	34	67	43	46
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	55	71	71	48	71	61	39	71	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	39*	49*	49*	34	49*	41*	46	49*	36	41
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	41*	49*	49*	35	49*	40*	45	49*	35	39	41*	46	34	36	40	30	49	36	27
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	39*	49*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	47*	40*	40*	41	40*	44	36	40*	37	32
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	49*	38*	36*	44	36*	49*	39

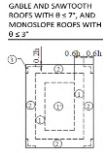
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

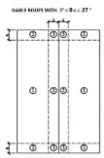
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

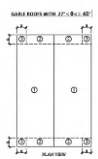
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

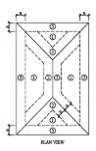












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

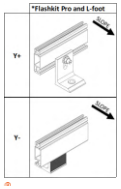
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	45	63	60	39	63	51	34
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	46*
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	48	63	63	41	63	55	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	49	63	63	40	63	52	35	63	43	46
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	46*	39*	39*	36*	39*	36*	41	39*	48*	36
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	56	67	67	45	67	60	39	67	50	34
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	67	55	67	67	48	67	61	39	67	49	51	63	67	41	44	52	36	38	43	48	34	38	42
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	34*	43*	41*	46
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	35*	43*	40*	45	43*	35*	39	41*	46	34	36*	40	49	43*	36	41
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	47*	36*	49*	41	36*	44*	36	36*	39	52
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	49*	34*	34*	44*	34*	49*	39	
100	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	46*
		20-27	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
		27-45	Interior	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*
			Exposed	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	48	60	60	41	60	55	36
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	49	60	60	40	60	52	35	60	43	46
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	46*	36*	36*	41	36*	48*	36	36*	43*	52
		20-27	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	44*	29*	29*	43*	29*	44*	39*			
		27-45	Interior	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*
			Exposed	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	42*
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	56	63	63	45	63	60	39	63	50	34
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	48	63	61	39	63	49	51	63	63	41	44	52	36	38	43	48	34	38	42
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	46*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	45	39*	35*	39	39*	46*	34	36*	40	49	39*	36	41
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	49*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	47*	33*	49*	41*	33*	44*	36	33*	39*	52
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	44*	31*	47*	39*

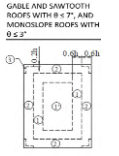
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

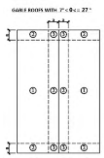
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

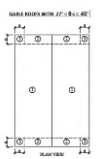
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

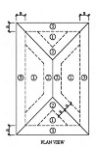












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

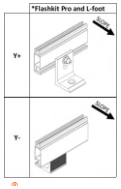
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	135	150	142	125	150	132	116	145	124	106	137	117	95	129	110	87
			Exposed	150	150	150	150	150	150	150	150	144	150	150	136	150	148	130	150	141	124	150	135	119	146	125	107	135	117	94	126	106	84	119	96	76	112	88	65	102	80	58
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	136	151	148	125	151	135	115	151	125	102	142	117	90	132	107	81
			Exposed	151	151	151	151	151	151	151	151	147	151	151	138	151	151	131	151	146	124	151	139	118	151	126	103	140	116	89	129	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	145	130	151	133	120	151	124	111	144	116	98
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	149	133	151	134	121	151	123	109	140	113	94	131	98	82	123	87	73	116	78	62
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	150	138	152	140	128	152	131	120	143	124	113
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	141	152	129	152	139	121	108	128	113	95	119	102	85	110	92	77			
	C	0-7	Interior	150	150	150	150	150	150	150	150	148	150	150	140	150	150	133	150	145	127	150	139	122	150	128	112	139	119	98	130	111	88	122	100	79	115	91	72	106	84	61
			Exposed	150	150	133	150	143	126	150	136	119	150	130	114	145	124	105	138	119	97	132	114	91	122	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	143	151	151	135	151	151	128	151	143	122	151	130	109	145	119	94	133	108	82	123	95	73	115	84	61	102	76	84
			Exposed	151	151	135	151	149	126	151	140	119	151	132	112	151	125	101	144	119	92	136	113	85	124	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	139	125	151	127	115	145	117	99	135	104	87	126	92	77	119	82	65
			Exposed	151	151	151	151	151	144	151	151	134	151	141	126	151	151	133	151	126	114	148	120	104	136	105	88	125	90	76	117	79	63	107	70	86	96	58	77	87	81	65
		27-45	Interior	152	152	152	152	152	152	152	152	142	152	146	134	152	139	128	152	133	122	148	127	116	133	117	101	122	105	88	112	93	78	97	83	67	85	75	58	76	65	80
			Exposed	152	152	152	152	152	151	152	152	142	152	146	134	152	139	128	152	133	122	148	127	116	133	117	101	122	105	88	112	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	150	150	150	150	150	142	150	150	134	150	146	128	150	139	122	150	133	117	149	127	111	137	118	96	127	108	85	119	97	76	112	88	65	101	80	57	92	73	78
			Exposed	150	139	122	150	131	115	146	125	107	139	119	98	132	114	91	127	107	84	122	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	151	151	151	151	151	145	151	151	136	151	151	128	151	143	122	151	136	116	151	129	107	142	118	91	130	104	79	120	91	68	110	80	58	96	72	80	86	61	72
			Exposed	151	143	121	151	134	114	151	126	103	145	119	93	136	113	85	129	103	78	123	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	147	151	151	138	151	145	130	151	137	124	151	125	112	142	114	95	132	99	83	123	87	73	116	78	61	106	68	85
			Exposed	151	151	137	151	143	128	151	134	121	151	126	114	148	120	104	141	114	94	134	104	86	124	88	74	115	76	60	102	63	82	92	86	73	83	77	61	75	65	54
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	151	138	152	144	132	152	132	121	141	122	110	129	114	96	119	102	85	109	91	77	96	83	66
			Exposed	152	152	145	152	149	136	152	140	129	152	133	122	148	127	116	140	121	109	132	116	100	120	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	125	141	132	116	141	124	106	137	117	95	129	110	87
			Exposed	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	124	141	135	119	141	125	107	135	117	94	126	106	84	119	96	76	112	88	65	102	80	58
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	125	141	135	115	141	125	102	141	117	90	132	107	81
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	124	141	139	118	141	126	103	140	116	89	129	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	145	130	147	133	120	147	124	111	144	116	98
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	133	147	134	121	147	123	109	140	113	94	131	98	82	123	87	73	116	78	62
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	150	138	151	140	128	151	131	120	143	124	113
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	141	129	151	130	119	139	121	108	128	113	95	119	102	85	110	92	77
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	139	122	141	128	112	139	119	98	130	111	88	122	100	79	115	91	72	106	84	61
			Exposed	141	141	133	141	141	126	141	136	119	141	130	114	141	124	105	138	119	97	132	114	91	122	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	128	141	141	122	141	130	109	141	119	94	133	108	82	123	95	73	115	84	61	102	76	84
			Exposed	141	141	135	141	141	126	141	140	119	141	132	112	141	125	101	141	119	92	136	113	85	124	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	146	147	147	138	147	139	125	147	127	115	145	117	99	135	104	87	126	92	77	119	82	65
			Exposed	147	147	147	147	147	144	147	147	134	147	141	126	147	133	120	147	126	114	147	120	104	136	105	88	125	90	76	117	79	63	107	70	86	96	58	77	87	81	65
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	141	129	151	134	122	144	124	114	133	116	100	123	107	89	115	96	81
			Exposed	151	151	151	151	151	151	151	151	142	151	146	134	151	139	128	151	133	122	148	127	116	133	117	101	122	105	88	112	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	128	141	139	122	141	133	117	141	127	111	137	118	96	127	108	85	119	97	76	112	88	65	101	80	57	92	73	78
			Exposed	141	139	122	141	131	115	141	125	107	139	119	98	132	114	91	127	107	84	122	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	128	141	141	122	141	136	116	141	129	107	141	118	91	130	104	79	120	91	68	110	80	58	96	72	80	86	61	72
			Exposed	141	141	121	141	134	114	141	126	103	141	119	93	136	113	85	129	103	78	123	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	148	148	148	148	148	148	148	148	148	148	147	148	148	138	148	145	130	148	137	124	148	125	112	142	114	95	132	99	83	123	87	73	116	78	61	106	68	85
			Exposed	148	148	137	148	143	128	148	134	121	148	126	114	148	120	104	141	114	94	134	104	86	124	88	74	115	76	60	102	63	82	92	86	73	83	77	61	75	65	54
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	151	138	152	144	132	152	132	121	141	122	110	129	114	96	119	102	85	109	91	77	96	83	66
			Exposed	152	152	145	152	149	136	152	140	129	152	133	122	148	127	116	140	121	109	132	116	100	120	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	116	127	124	106	127	117	95	127	110	87			
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	124	127	127	119	127	125	107	127	117	94	126	106	84	119	96	76	112	88	65	102	80	58
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	115	128	125	102	128	117	90	128	107	81			
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	126	103	128	116	89	128	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	130	136	124	111	136	116	98			
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	134	121	136	123	109	136	113	94	131	98	82	123	87	73	116	78	62
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	139*	143*	140*	128	143*	131	120	143*	124	113
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	142*	143*	141*	129	143*	130	119	140*	121	108	128	113	95	119	102	85	110	92	77
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	111	88	122	100	79	115	91	72
			Exposed	127	127	127	127	127	126	127	127	119	127	127	114	127	124	105	127	119	97	127	114	91	122	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	109	128	108	82	123	95	73
			Exposed	128	128	128	128	128	126	128	128	119	128	128	112	128	125	101	128	119	92	128	113	85	124	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
			Exposed	136	136	136	136	136	136	136	136	134	136	136	126	136	133	120	136	126	114	136	120	104	136	105	88	125	90	76	117	79	63	107	70	86	96	58	77	87	81	65
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	134	143*	140*	128	143*	133	122	143*	127	116	133	117	101	122	105	88	112	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	127	111	127	118	96	127	108	85	119	97	76	112	88	65	101	80	57	92	73	78
			Exposed	127	127	122	127	127	115	127	125	107	127	119	98	127	114	91	127	107	84	122	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	122	128	128	116	128	128	107	128	118	91	128	104	79	120	91	68	110	80	58	96	72	80	86	61	72
			Exposed	128	128	121	128	128	114	128	126	103	128	119	93	128	113	85	128	103	78	123	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	130	138	137	124	138	125	112	138	114	95	132	99	83	123	87	73	116	78	61	106	68	85
			Exposed	138	138	137	138	138	128	138	134	121	138	126	114	138	120	104	138	114	94	134	104	86	124	88	74	115	76	60	102	63	82	92	86	73	83	77	61	75	65	54
		27-45	Interior	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	143	149*	149*	138	149*	143	132	149*	132	121	141	122	110	129	114	96	119	102	85	109	91	77	96	83	66
			Exposed	149*	149*	143	149*	149*	136	149*	140	129	149*	133	122	149*	127	116	140	121	109	132	116	100	120	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65

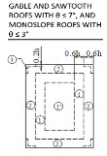
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

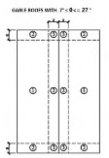
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

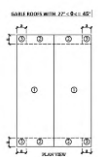
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

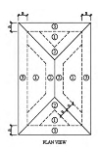












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

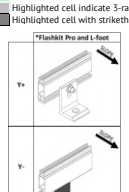
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	116	118	118	106	118	117	95	118	110	87
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	117	94	118	106	84	118	96	76	112	88	65	102	80	58
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	115	119	119	102	119	119	90	119	107	81
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	118	119	119	103	119	116	89	119	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	120*	128*	128*	120*	128*	124*	111*	128*	116*	98
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	121*	128*	122*	109	128*	113*	94	128*	98	82	123*	87	72	116*	78	62
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	120*	124*	124*	113*			
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119*	124*	121*	108*	124*	113*	95	119*	102	85	110*	92	77
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	98	118	111	88	118	100	79	115	91	72	106	84	61
			Exposed	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	97	118	114	91	118	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61		
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	82	119	95	73	115	84	61	102	76	84
			Exposed	119	119	119	119	119	119	119	119	119	112	119	119	101	119	119	92	119	113	85	119	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54		
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	125*	128*	127*	115*	128*	117*	99	128*	104	87	126*	92	77	119*	82	65
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	126*	128*	128*	120*	128*	126*	114*	128*	120*	104	128*	105	88	125*	90	76	117*	79	63	107	70	86	96	58	77	87	81	65		
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122*	124*	124*	114*	124*	116*	100	123*	107*	89	115*	96	81
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122*	124*	124*	116*	124*	117*	101	122*	105*	88	112*	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	111	118	118	96	118	108	85	118	97	76	112	88	65	101	80	57	92	73	78
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	91	119	104	79	119	91	68	110	80	58	96	72	80	86	61	72
			Exposed	119	119	119	119	119	114	119	119	103	119	119	93	119	113	85	119	103	78	119	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	130*	133*	133*	124*	133*	125*	112	133*	114	95	132*	99	83	123*	87	73	116	78	61	106	68	85
			Exposed	133*	133*	133*	133*	133*	128*	133*	133*	121*	133*	126*	114	133*	120	104	133*	114	94	133*	104	86	124*	88	74	115	76	60	102	63	82	92	86	73	83	77	61	75	65	54
		27-45	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	121*	129*	114*	96	119*	102	85	109	91	77	96	83	66			
			Exposed	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	122*	129*	127*	116*	129*	121*	109	129*	116*	100	120*	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	106	115	115	95	115	110	87
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	96	115	115	96	115	115	96	112	88	65	102	80	58
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	115*	118*	118*	102	118*	117*	90	118*	107*	81
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	103	118*	116*	89	118*	102	78	118*	90	65	110*	80	58	97	73	80
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	111*	114*	114*	98*			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	109*	114*	113*	94*	114*	98*	82	114*	87*	73	114*	78	62
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*			
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	92*	77
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	112	115	115	98	115	111	88	115	100	79	115	91	72	106	84	61
			Exposed	115	115	115	115	115	115	115	115	115	114	115	115	105	115	115	97	115	114	91	115	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61		
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	109*	118*	118*	94	118*	108*	82	118*	95	73	115*	84	61	102	76	84
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	112*	118*	118*	101	118*	118*	92	118*	113*	85	118*	96	73	114*	83	60	98	73	81	86	61	72	77	84	60	65	76	54		
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	99*	114*	104*	87*	114*	92*	77	114*	82	65
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104*	114*	105*	88*	114*	90*	76	114*	79	63	107*	70	86	96*	58	77
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	100*	107*	107*	89*	107*	96*	81
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	101*	107*	105*	88*	107*	93*	78	97*	83*	67	85*	75	58	76	65	80
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	111	118	118	96	118	108	85	118	97	76	112	88	65	101	80	57	92	73	78
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	107	121*	118*	91	121*	104	79	120*	91	68	110	80	58	96	72	80	86	61	72
			Exposed	121*	121*	121*	121*	121*	114	121*	121*	103	121*	119*	93	121*	113	85	121*	103	78	121*	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	112*	119*	114*	95	119*	99*	83	119*	87	73	116*	78	61	106*	68	85
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	114*	119*	119*	104*	119*	114*	94	119*	104*	86	119*	88	74	115*	76	60	102*	63	82	92	86	73	83	77	61	75	65	54		
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	110*	115*	114*	96*	115*	102*	85	109*	92*	77	96*	83	66
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	109*	115*	115*	100*	115*	115*	103*	86	107*	90*	75	92*	80	63	81	72	85	72	61	76	60	82	65
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	95	108	108	87			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	107	108	108	94	108	106	84	108	96	76	108	88	65	102	80	58
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	102*	110*	110*	90*	110*	107*	81
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	103*	110*	110*	89*	110*	102*	78	110*	90*	65	110*	80	58	97*	73	80
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	82*	94*	87*	73*	94*	78*	62
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*			
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	85*	88*	88*	77*
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	88	108	108	91	72	106	84	61
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	105	108	108	97	108	108	91	108	101	80	108	90	71	103	81	59	93	74	78	84	64	71	78	57	61		
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	109*	110*	110*	95*	110*	108*	82	110*	95*	73	109*	84	61	102*	76	84
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	101*	110*	110*	92*	110*	110*	85	110*	96*	73	110*	83	60	98*	73	81	86	61	72	77	84	60	65	76	54		
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	87*	94*	92*	77*	94*	82*	65
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	94*	94*	76*	94*	79*	63	94*	70	86	94*	58	77
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	81*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	81*
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	111	112	112	96	112	108	85	112	97	76	112	88	65	101	80	57	92	73	78
			Exposed	112	112	112	112	112	112	112	112	107	112	112	98	112	112	91	112	107	84	112	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	107*	116*	116*	91	116*	104*	79	116*	91	68	110*	80	58	96*	72	80	86	61	72
			Exposed	116*	116*	116*	116*	116*	114*	116*	116*	103*	116*	116*	93	116*	113*	85	116*	103*	78	116*	94	72	111*	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	95*	103*	99*	83*	103*	87*	73	103*	78	61	103*	68	85
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	94*	103*	103*	86*	103*	103*	82*	103*	76	60	102*	63	82
		27-45	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*			
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	86*	97*	90*	76*	92*	80*	63	81*	72	85	72	61	76	60	82	65

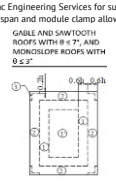
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

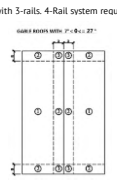
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

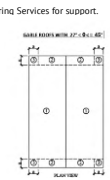
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

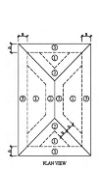












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

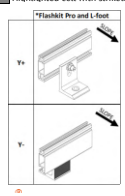
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	95	99	99	87			
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	84	99	96	76	99	88	65	99	80	58
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	81*			
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	89*	96*	96*	78*	96*	90*	65	96*	80*	58	96*	73	80
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	79*	72*	79*	79*	72*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	79*	72*	79*	79*	62*
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	88	99	99	79	99	91	72	99	84	61		
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	91	99	99	80	99	90	71	99	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	82*	96*	95*	73	96*	84*	61	96*	76*	84
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	85*	96*	96*	82*	96*	73	81	86*	61	72	77*	84	60	65	76	54
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	79*	79*	65*	
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	86*	79*	58	77	79*	81	65
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	67*	75*	75*	58*	75*	65*	80
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	85	104	97	76	104	88	65	101	80	57	92	73	78		
			Exposed	104	104	104	104	104	104	104	104	104	104	104	98	104	104	91	104	104	84	104	100	79	104	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	91*	106*	104*	79	106*	91*	68	105*	80	58	96*	72	80
			Exposed	106*	106*	106*	106*	106*	106*	106*	106*	103*	106*	106*	93*	106*	106*	85*	106*	103*	78	106*	94*	72	106*	81*	58	95*	71	78	83*	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	73*	87*	78*	61	87*	68*	85			
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	86*	87*	87*	74*	87*	76*	60	87*	63	82	87*	86	73	83*	77	61	75*	65	54
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	77*	82*	82*	66*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	75*	82*	80*	63	81*	72*	85	72*	61	76	60	82	65
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	87			
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	81*			
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*	80
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	62*
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	79	92	91	72	92	84	61		
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	91	92	92	80	92	90	71	92	81	59	92	74	78	84	64	71	78	57	61
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	82*	83*	83*	73*	83*	83*	61	83*	76*	84
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*	83*	83*	60	83*	73*	81	83*	61	72	77*	84	60	65*	76	54
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	65*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	63*	69*	69*	86*	69*	58*	77	69*	81*	65
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	96	97	97	76	97	88	65	97	80	57	92	73	78		
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	91	97	97	84	97	97	79	97	88	67	97	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	91*	92*	92*	79*	92*	91*	68	92*	80*	58	92*	72*	80	61	72
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	85*	92*	92*	78*	92*	92*	72*	92*	81*	58	92*	71*	78	83*	58	66	73*	80	57	61	72	54	85	60	45
		20-27	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	73*	76*	76*	61*	76*	68*	85		
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	74*	76*	76*	60	76*	63*	82	76*	86	73	76*	77	61	75*	65	54
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	66*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	63*	72*	72*	85*	72*	61*	76	60*	83*	65
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87			
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	87	87	87	76	87	87	65	87	80	58			
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*			
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	80
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	79	87	87	72	87	84	61		
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	80	87	87	71	87	81	59	87	74	78	84	64	71	78	57	61
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	61*	74*	74*	84
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	60*	74*	73*	81	74*	61*	72	74*	84	60	65*	76	54
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	86*	61*	58*	77*	61*	81*	65
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	80*
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85	91	91	76	91	88	65	91	80	57	91	73	78		
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	84	91	91	79	91	88	67	91	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	79*	81*	81*	68*	81*	80*	58
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78	81*	81*	72	81*	81*	58	81*	71*	78	81*	58	66	73*	80	57	61	72	54	85	60	45
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	85*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	63*	82*	67*	86*	73	67*	77	61	67*	65	54
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	85*	64*	61*	76*	60*	82*	65

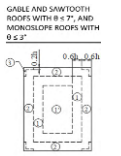
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

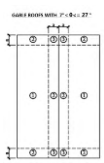
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

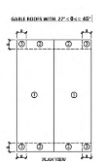
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

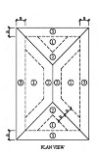












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

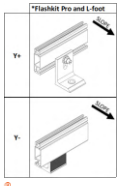
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	82	65	82	80	58		
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	65*	66*	66*	58*	66*	66*	80*		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	72	82	82	61		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	82	71	82	81	59		
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	61*	66*	66*	84*		
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	72	66*	84*	60	65*	76*	54		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*	55*	55*	77*	55*	81*	65*		
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	78*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	76		
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	86	79	86	86	67	86	79	56	86	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	68*	73*	73*	58*	73*	72*	80
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	73*	73*	58*	73*	71*	78	73*	58*	66	73*	80	57	61*	72	51	85*	60	45		
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	82*	60*	86*	73*	60*	77*	61	60*	65	54
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	85*	57*	57*	76*	57*	82*	65		
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	80*
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	72	78	78	61		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	71	78	78	59	78	74	78
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	84*
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	74*	49*	49*	74*	49*	74*	65*		
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	82	65	82	80	57
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	67	82	79	56	82	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	72
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	78*	66*	58*	66	66*	80*	57	61*	72	51	45
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*	55*	55*	82*	73*	55*	77*	61	55*	65*	54
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	78*	52*	52*	76*	52*	78*	65*		

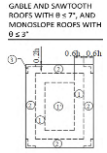
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

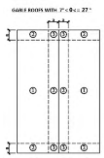
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

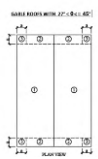
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

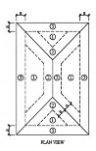












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

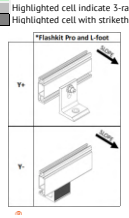
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	116	120	120	110	120	120	104	120	113	93	120	102	84	114	93	77	105	85	71	97	79	58	90	74	49
			Exposed	120	120	116	120	120	109	120	119	101	120	114	95	120	107	89	120	101	84	116	95	79	105	86	71	95	78	57	87	72	46	80	61	37	74	50	49	67	43	43
		7-20	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	115	120	120	109	120	120	102	120	112	91	120	100	82	114	90	74	103	82	63	94	76	50	87	69	41
			Exposed	120	120	115	120	120	107	120	119	99	120	113	92	120	106	86	120	99	81	116	93	76	104	83	65	93	75	49	84	64	38	77	50	49	71	41	43	57	34	38
		20-27	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	117	121	121	117	121	117	105	121	107	94	121	97	85	117	88	77	109	81	71	101	74	58
			Exposed	121	121	121	121	121	120	121	121	114	121	118	107	121	113	99	121	106	93	121	99	87	117	88	78	108	80	70	98	72	53	90	59	42	83	47	35	77	38	46
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	114	121	115	103	120	106	93	113	97	85	103	89	79	94	83	73
			Exposed	121	121	121	121	121	121	121	121	120	121	121	115	121	119	109	121	115	102	121	109	96	113	98	86	101	88	78	92	81	71	83	74	57	77	65	46	71	54	38
	C	0-7	Interior	120	120	118	120	120	113	120	120	105	120	116	98	120	111	92	120	105	87	119	99	82	109	89	74	99	81	62	90	74	50	83	66	40	77	55	34	71	46	46
			Exposed	120	111	92	120	103	85	117	96	80	111	90	75	104	85	70	98	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	120	120	118	120	120	111	120	120	103	120	116	96	120	110	89	120	103	84	119	97	79	108	86	71	97	78	54	88	71	42	80	56	34	73	45	46	64	37	41
			Exposed	120	110	89	120	101	83	117	94	77	110	87	72	103	82	62	96	77	53	90	73	45	80	57	35	73	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	121	121	121	121	121	121	121	121	117	121	121	111	121	116	104	121	110	97	121	104	91	120	92	81	112	83	73	101	75	59	93	65	46	86	52	37	79	42	49
			Exposed	121	116	103	121	109	95	121	100	88	121	93	82	116	87	77	111	82	72	104	77	64	93	67	47	85	50	36	77	39	47	71	33	41	59	44	36	49	39	32
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	118	121	121	113	121	117	106	121	113	100	116	101	89	106	92	81	95	83	73	87	77	62	79	71	50	73	59	41
			Exposed	121	121	113	121	116	104	121	110	97	117	103	91	112	96	85	105	91	80	98	86	75	87	77	64	78	70	49	71	55	38	56	45	33	45	37	44	36	49	39
	D	0-7	Interior	120	120	108	120	118	100	120	112	93	120	105	87	119	99	82	114	93	77	108	88	73	97	80	59	88	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	118	99	82	113	92	76	105	86	71	99	81	62	93	76	53	87	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	120	120	106	120	117	98	120	111	91	120	103	84	119	97	79	114	91	74	107	85	70	95	76	51	85	66	39	77	51	33	71	41	43	57	34	38	46	46	34
			Exposed	119	96	79	112	89	73	104	83	64	97	77	53	90	73	45	85	65	38	80	55	34	71	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	121	121	119	121	121	113	121	117	105	121	111	97	121	103	91	121	97	85	119	91	80	110	81	72	99	73	55	90	60	43	83	47	34	76	38	46	71	33	41
			Exposed	121	103	91	121	95	84	117	88	78	111	82	73	104	77	64	98	72	54	93	65	46	83	48	35	75	36	45	67	47	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	121	121	121	121	121	119	121	121	114	121	118	107	121	113	100	120	106	94	115	100	88	103	90	79	93	81	72	84	74	57	77	65	46	70	53	37	56	44	49
			Exposed	121	113	99	119	105	92	113	97	86	105	91	80	98	86	75	92	81	71	86	76	62	77	67	47	68	52	36	52	41	47	41	34	41	34	46	36	45	41	32
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	110	111	111	104	111	111	93	111	102	84	111	93	77	105	85	71	97	79	58	90	74	49
			Exposed	111	111	111	111	111	109	111	111	101	111	111	95	111	107	89	111	101	84	111	95	79	105	86	71	95	78	57	87	72	46	80	61	37	74	50	49	67	43	43
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	109	112	112	102	112	112	91	112	100	82	112	90	74	103	82	63	94	76	50	87	69	41
			Exposed	112	112	112	112	112	107	112	112	99	112	112	92	112	106	86	112	99	81	112	93	76	104	83	65	93	75	49	84	64	38	77	50	49	71	41	43	57	34	38
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	105	117	107	94	117	97	85	117	88	77	109	81	71	101	74	58
			Exposed	117	117	117	117	117	117	117	117	114	117	117	107	117	113	99	117	106	93	117	99	87	117	88	78	108	80	70	98	72	53	90	59	42	83	47	35	77	38	46
		27-45	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	114*	120*	115*	103	120*	106	93	113*	97	85	103	89	79	94	83	73
			Exposed	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	115*	120*	119*	109*	120*	115*	102	120*	109*	96	113*	98	86	101	88	78	92	81	71	83	74	57	77	65	46	71	54	38
	C	0-7	Interior	111	111	111	111	111	111	111	111	105	111	111	98	111	111	92	111	105	87	111	99	82	109	89	74	99	81	62	90	74	50	83	66	40	77	55	34	71	46	46
			Exposed	111	111	92	111	103	85	111	96	80	111	90	75	104	85	70	98	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	112	112	112	112	112	112	112	112	103	112	112	96	112	110	89	112	103	84	112	97	79	108	86	71	97	78	54	88	71	42	80	56	34	73	45	46	64	37	41
			Exposed	112	110	89	112	101	83	112	94	77	110	87	72	103	82	62	96	77	53	90	73	45	80	57	35	73	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	111	117	116	104	117	110	97	117	104	91	117	92	81	112	83	73	101	75	59	93	65	46	86	52	37	79	42	49
			Exposed	117	116	103	117	109	95	117	100	88	117	93	82	116	87	77	111	82	72	104	77	64	93	67	47	85	50	36	77	39	47	71	33	41	59	44	36	49	39	32
		27-45	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	118*	120*	120*	113*	120*	117*	106	120*	113*	100	116*	101	89	106	92	81	95	83	73	87	77	62	79	71	50	73	59	41
			Exposed	120*	120*	113*	120*	116*	104	120*	110*	97	117*	103	91	112*	96	85	105	91	80	98	86	75	87	77	64	78	70	49	71	55	38	56	45	33	45	37	44	36	49	39
	D	0-7	Interior	111	111	108	111	111	100	111	111	93	111	105	87	111	99	82	111	93	77	108	88	73	97	80	59	88	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	111	99	82	111	92	76	105	86	71	99	81	62	93	76	53	87	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	112	112	106	112	112	98	112	111	91	112	103	84	112	97	79	112	103	84	112	97	79	95	76	51	85	66	39	77	51	33	71	41	43	57	34	38	46	46	34
			Exposed	112	96	79	112	89	73	104	83	64	97	77	53	90	73	45	85	65	38	80	55	34	71	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	118	118	118	118	118	113	118	117	105	118	111	97	118	103	91	118	97	85	118	91	80	110	81	72	99	73	55	90	60	43	83	47	34	76	38	46	71	33	41
			Exposed	118	103	91	118	95	84	117	88	78	111	82	73	104	77	64	98	72	54	93	65	46	83	48	35	75	36	45	67	47	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	122*	122*	122*	122*	122*	119*	122*	122*	114	122*	118*	107	122*	113	100	120*	106	94	115*	100	88	103	90	79	93	81	72	84	74	57	77	65	46	70	53	37	56	44	49
			Exposed	122*	113	99	119*	105	92	113	97	86	105	91	80	98	86	75	92	81	71	86	76	62	77	67	47	68	52	36	52	41	47	41	34	41	34	46	36	45	41	32
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	96	84	96	93	77	96	85	71	96	79	58	90	74	49
			Exposed	96	96	96	96	96	96	96	96	96	96	96	95	96	96	89	96	96	84	96	95	79	96	86	71	95	78	57	87	72	46	80	61	37	74	50	49	67	43	43
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	102*	103*	103*	91	103*	100*	82	103*	90	74	103*	82	63	94	76	50	87	69	41
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	99*	103*	103*	92	103*	103*	86	103*	99*	81	103*	93	76	103*	83	65	93	75	49	84	64	38	77	50	49	71	41	43	57	34	38
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94*	102*	97*	85*	102*	88*	77	102*	81*	71	101*	74	58
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	99*	102*	102*	93*	102*	99*	87*	102*	88*	78*	102*	80*	70	98*	72	53	90*	59	42	83*	47	35	77	38	46
		27-45	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	85*	93*	89*	79*	93*	83*	73*
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	86*	93*	88*	78*	92*	81*	71*	83*	74*	57	77*	65	46	71*	54	38
	C	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	87	96	96	82	96	89	74	96	81	62	90	74	50	83	66	40	77	55	34	71	46	46
			Exposed	96	96	92	96	96	85	96	96	80	96	90	75	96	85	70	96	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96	103*	103*	89	103*	103*	84	103*	97*	79	103*	86	71	97*	78	54	88	71	42	80	56	34	73	45	46	64	37	41
			Exposed	103*	103*	89	103*	101*	83	103*	94	77	103*	87	72	103*	82	62	96	77	53	90	73	45	80	57	35	73	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	92*	81*	102*	83*	73	101*	75	59	93*	65	46	86*	52	37	79*	42	49
			Exposed	102*	102*	102*	102*	102*	95*	102*	100*	88*	102*	93*	82*	102*	87*	77	102*	82*	72	102*	77	64	93*	67	47	85*	50	36	77	39	47	73	33	41	59	44	36	49	39	32
		27-45	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	89*	93*	92*	81*	93*	83*	73*	87*	77*	62	79*	71*	50	73*	59	41
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	91*	93*	93*	85*	93*	91*	80*	93*	86*	75*	87*	77*	64	78*	70	49	71*	55	38	56	45	33	45	37	44	36	49	39
	D	0-7	Interior	96	96	96	96	96	96	96	96	93	96	96	87	96	96	82	96	93	77	96	88	73	96	80	59	88	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	96	96	82	96	92	76	96	86	71	96	81	62	93	76	53	87	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	106*	106*	106*	106*	106*	96	106*	106*	91	106*	96	84	106*	96	79	106*	91	74	106*	85	70	95	76	51	85	66	39	77	51	33	71	41	43	57	34	38	46	46	34
			Exposed	106*	96	79	106*	89	73	96	83	64	96	77	53	90	73	45	85	65	38	80	55	34	71	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	105*	108*	108*	97*	108*	103*	91*	108*	97*	85*	108*	91*	80	108*	81	72	99*	73	55	90*	60	43	83	47	34	76	38	46	71	33	41
			Exposed	108*	103*	91	108*	95*	84	108*	88*	78	108*	82	73	104*	77	64	98*	72	54	93*	65	46	83	48	35	75	36	45	67	47	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	94*	100*	100*	88*	100*	90*	79*	93*	81*	72	84*	74	57	77*	65	46	70	53	37	56	44	49
			Exposed	100*	100*	99*	100*	100*	92*	100*	97*	86*	100*	91*	80*	98*	86*	75	92*	81*	71	86*	77*	62	77*	67	47	68	52	36	52	41	47	41	34	41	34	46	36	45	41	32

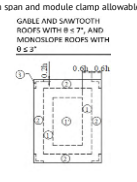
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

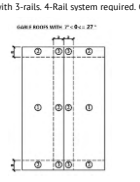
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

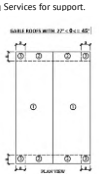
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

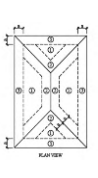












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

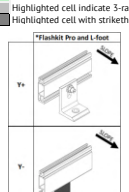
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	71	86	84	79	58	86	74	49
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	79	86	86	71	86	78	57	86	72	46	80	61	37	74	50	49	67	43	43
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	74*	87*	82*	63	87*	76*	50	87*	69*	41
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	86*	87*	87*	81*	87*	87*	76*	87*	83*	65	87*	75*	49	84*	64	38	77*	50	49	71*	41	43	57	34	38
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	71*	73*	73*	71*	73*	73*	58*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	53	73*	59*	42	73*	47	35	73*	38	46
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57*	68*	65*	46	68*	54*	38
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	74	86	81	62	86	74	50	83	66	40	77	55	34	71	46	46
			Exposed	86	86	86	86	86	85	86	86	80	86	86	75	86	85	70	86	80	61	86	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	87*	87*	79*	87*	86*	71*	87*	78*	54	87*	71*	42	80*	56	34	73*	45	46	64	37	41
			Exposed	87*	87*	87*	87*	87*	83*	87*	87*	77*	87*	87*	72*	87*	82*	62	87*	77*	53	87*	73*	45	80*	57	35	73*	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	59*	73*	65*	46	73*	52	37	73*	42	49
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	64*	73*	67*	47	73*	50	36	73*	39	47	71*	33	41	59*	44	36	49	39	32
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62*	68*	68*	50	68*	59*	41	68*	54*	38
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	49	68*	55*	38	56*	45	33	45	37	44	36	49	39
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	77	86	86	73	86	80	59	86	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	86	86	82	86	86	76	86	86	71	86	81	62	86	76	53	86	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	87*	87*	79*	87*	87*	74*	87*	87*	70	87*	85*	70	87*	76*	51	85*	66	39	77*	51	33	71	41	43	57	34	38
			Exposed	87*	87*	79*	87*	87*	73*	87*	83*	64	87*	77*	53	87*	73*	45	85*	65	38	80*	55	34	71	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	73*	55	80*	60	43	80*	47	34	76*	38	46	71*	33	41
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	78*	80*	80*	73*	80*	77*	64*	80*	72*	54	80*	65*	46	80*	48	35	75*	36	45	67*	47	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	58*	74*	65*	46	70*	53	37	56	44	49
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	71*	74*	74*	62*	74*	67*	47	68*	52	36	52	41	47	41	34	41	34	46	36	45	41	32	44	32	24
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	71	83	83	79	58	83	74	49
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	79	83	83	72	83	72	46	83	71	37	74	50	49	67	43	43
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	63*	70*	70*	50	70*	69*	41	70*	69*	41
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	64*	38	70*	50	49	70*	41	43	57*	34	38
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	42	57*	47*	35	57*	38	46
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	38
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	74	83	81	62	83	74	50	83	66	40	77	55	34	71	46	46
			Exposed	83	83	83	83	83	83	83	83	80	83	83	75	83	83	70	83	80	61	83	76	53	83	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	42	70*	56*	34	70*	45	46	64*	37	41
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	53	70*	70*	45	70*	57*	35	70*	43	45	59*	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	46*	57*	57*	42	57*	52*	37	57*	42	49
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	47*	57*	50*	36	57*	39	47	57*	33	41	57*	44	36	49*	39	32
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	50*	54*	54*	41
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	49*	54*	54*	38	54*	45*	33	45*	37	44	36	49	39
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	77	85	85	73	85	80	59	85	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	85	85	82	85	85	76	85	85	71	85	81	62	85	76	53	85	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	74*	77*	77*	70*	77*	76*	51	77*	66*	39	77*	51	33	71*	41	43	57	34	38	46	46	34
			Exposed	77*	77*	77*	77*	77*	73*	77*	77*	64*	77*	77*	53	77*	73*	45	77*	65*	38	77*	55	34	71*	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	55*	63*	60*	43	63*	47	34	63*	38	46	63*	33	41
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	48	35	63*	36	45	63*	47	39	54*	41	34	44	36	30	37	32	27
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	59*	46*	59*	53*	37	56*	44	49
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	47*	59*	52*	36	52*	41	47	41	34	41	34	46	36	45	41	32
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	58	77	74	49	77	74	49
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	57	77	72	46	77	71	37	74	50	49	67	43	43
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	50*	57*	57*	41
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	38	57*	57*	49	57*	41	43	57*	34	38
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	35	47*	38*	46	47*	38*	46
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	62	77	74	50	77	66	40	77	55	34	71	46	46
			Exposed	77	77	77	77	77	77	77	77	77	77	77	75	77	77	70	77	77	61	77	76	53	77	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	42	57*	57*	50*	57*	45*	46	57*	37	41
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	53*	57*	57*	45*	57*	57*	35	57*	43	45	57*	35	39	46*	46	34	37	40	30	49	36	27
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	36	47*	39*	47*	47*	33	41	47*	44	36	47*	39	29
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	33	44*	44*	36*	49	39	29
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	77	80	80	73	80	80	59	80	72	47	80	61	38	74	50	49	67	42	43	56	36	38
			Exposed	80	80	80	80	80	76	80	80	71	80	80	62	80	76	53	80	72	46	80	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	51*	63*	63*	39	63*	51*	33	63*	41	43	57*	34	38	46	46	34
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	53*	63*	63*	53*	63*	63*	45	63*	63*	38	63*	55*	34	63*	41	44	55*	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43*	52*	47*	34	52*	38	46	52*	33	41
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	46*	52*	48*	35	52*	47	39	52*	41	34	44*	36	45	52*	41	34	44*	36	27
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	37	49*	44*	49
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	36	49*	41*	47	41*	34	41	34	46	36	45	41	32

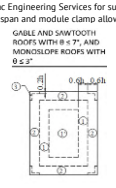
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

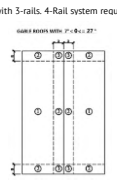
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

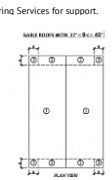
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

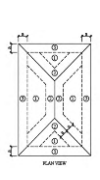












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

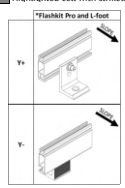
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	70	49			
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	57	70	70	46	70	61	37	70	50	49	67	43	43
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	38*	48*	48*	49	48*	41*	43	48*	34	38
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	39*	46*
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	62	70	70	50	70	66	40	70	55	34	70	46	46
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	53	70	67	41	70	53	34	69	43	44	56	36	38
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	34	48*	45*	46	48*	37	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	35	48*	48*	43*	45	48*	35	39	46*	46	34
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*	40*	40*	49*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	47*	40*	40*	33*	41	40*	44	36	40*	39	32
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	37*	44	36*	40*	38
	D	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	59	74	72	47	74	61	38	74	50	49	67	42	43	56	36	38
			Exposed	74	74	74	74	74	74	74	74	71	74	74	62	74	74	53	74	72	46	74	65	40	74	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	51*	33	53*	41*	43	53*	34	38	46*	46	34			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	45*	53*	53*	38	53*	53*	34	53*	41*	44	53*	33	37	43*	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	34*	44*	44*	34*	44*	38*	46	44*	33	41
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	35*	44*	36*	45	44*	47	39	44*	41	34	44*	36	30	37*	32	27
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	41*	49*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36*	41*	41*	47	41*	34*	41	34*	46	36	45	41	32
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	65	49			
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	49
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	42*	42*	41*	43	42*	34*	38
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	46*
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	50	65	65	40	65	55	34	65	46	46
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	65	53	65	65	41	65	53	34	65	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35*	42*	42*	45	42*	35*	39	42*	46	34	37*	40	30	49*	36	27
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	49*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	47*	35*	33*	41*	35*	44*	36	35*	39	32
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	44*	33*	49*	39*
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	59	69	69	47	69	61	38	69	50	49	67	42	43	56	36	38
			Exposed	69	69	69	69	69	69	69	69	62	69	69	53	69	69	46	69	65	40	69	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25			
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	39*	46*	46*	33	46*	41*	43	46*	34	38	46*	46	34
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	38	46*	46*	34	46*	41*	44	46*	33	37	43*	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	38*	46*	38*	33*	41			
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	36*	45*	38*	47*	39	38*	41	34	38*	36	30	37*	32	27
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	47*	36*	34*	41	34*	46*	36	45*	41	32
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	49	
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	50	61	43	43
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
		20-27	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*
		27-45	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	50	61	61	40	61	55	34	61	46	46
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	53	61	61	41	61	53	34	61	43	44	56	36	38	47	48	34
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	41
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*	37*	37*	45*	37*	35*	39	37*	46*	34	37*	40	30	49*	36	27
		20-27	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	46*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	46*	30*	30*	41*	30*	44*	36*	30*	39*	32
		27-45	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	44*	29*	44*	39*
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	47	65	61	38	65	50	49	65	42	43	56	36	38
			Exposed	65	65	65	65	65	65	65	65	62	65	65	53	65	65	46	65	65	40	65	65	51	49	65	41	42	53	34	37	43	45	32	36	28	48	35	25			
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	33*	41*	41*	43	41*	34*	38	41*	46	34
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	44	41*	33*	37	41*	44	32	35*	38	28	46	34	25	41	30	22
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	46*	34*	33*	41*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	45*	34*	47*	39*	34*	41*	34	34*	36	30	34*	32	27
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	48*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	47*	32*	32*	41*	32*	46*	36	45*	41*	32

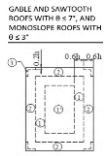
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

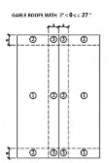
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

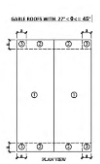
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

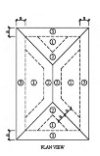












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

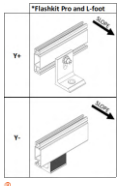
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	49
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	46	58	58	37	58	50	49	58	43	43
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	49*	33*	33*	43*	33*	33*	38
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	58	40	58	55	34	58	46	46
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	41	58	53	34	58	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	46*	33*	33*	41*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	45*	33*	33*	40*	30	49*	36	33*	46*	34	33*	40*	30	49*	36	27
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	32*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	47	61	61	38	61	50	49	61	42	43	56	36	38			
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	53	61	61	46	61	61	40	61	51	49	61	41	42	53	34	37	43	45	32	36	40	28	48	35	25			
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	33*	36*	36*	43*	36*	34*	38			
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	44*	36*	33*	37	36*	44*	32	35*	38	28	46*	34	25	41	30	22			
		20-27	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	41*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	45*	39*	30*	41*	34	30*	36*	30	30*	32	27
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36*	43*	41*	32
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	49
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	46	55	55	55	55	55	46	55	55	37	55	50	49	55	43	43
		7-20	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	43*	30*	30*	38*
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	40	55	55	34	55	46	46
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	41	55	53	34	55	43	44	55	36	38	47	48	34	40	42	30	
		7-20	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	41*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	39*	30*	45*	34	30*	40*	30	45*	36*	27			
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	36*	37*	37*	32*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	47	58	58	38	58	50	49	58	42	43	56	36	38			
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	46	58	58	40	58	51	49	58	41	42	53	34	37	43	45	32	36	40	28	48	35	25			
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	43*	33*	33*	38			
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	44*	33*	33*	37	33*	44*	32	33*	38	28	46*	34	25	41*	30	22			
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	36*	30	41*	32*	27
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	39*	32*

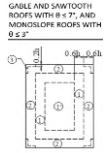
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

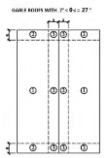
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

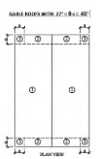
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

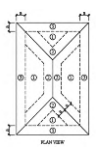












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

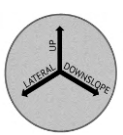
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

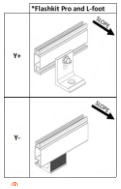
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	145	149	149	133	149	141	123	149	131	115	144	123	104	135	116	94	128	108	85
			Exposed	149	149	149	149	149	149	149	149	142	149	149	135	149	146	128	149	140	123	149	134	117	145	124	105	134	115	92	125	105	82	118	95	74	110	86	64	100	79	84
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	135	149	146	123	149	134	114	149	124	100	140	116	88	130	105	79
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	129	149	145	122	149	137	117	149	125	101	138	115	87	127	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	143	128	150	132	119	150	122	108	142	115	96
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	150	139	150	147	132	150	132	120	150	121	106	139	111	92	130	96	81	122	85	72	115	77	60
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	149	136	151	138	127	151	130	119	141	122	110
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	140	151	139	127	151	129	118	137	120	106	127	111	93	118	100	84	108	90	76
	C	0-7	Interior	149	149	149	149	149	149	149	149	146	149	149	139	149	149	132	149	144	126	149	137	121	149	127	110	138	118	97	129	109	86	121	99	78	114	90	71	104	82	60
			Exposed	149	149	132	149	142	124	149	135	118	149	128	112	143	123	103	137	118	96	131	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	133	149	149	126	149	142	120	149	128	107	143	118	92	131	106	80	121	93	71	113	83	60	100	75	83
			Exposed	149	149	133	149	147	125	149	138	117	149	130	109	149	123	99	142	117	90	134	111	83	122	94	72	111	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	144	150	150	136	150	137	123	150	125	113	143	115	97	133	102	85	125	90	76	118	80	64
			Exposed	150	150	150	150	150	142	150	148	133	150	139	125	150	131	118	150	124	111	146	118	101	134	103	86	124	88	74	116	77	61	105	65	84	94	57	75	85	80	63
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	143	131	151	132	121	142	123	112	131	115	98	122	105	88	114	95	79
			Exposed	151	151	151	151	151	150	151	151	141	151	145	133	151	138	126	151	131	120	146	126	115	132	116	99	120	103	86	109	91	76	95	82	64	84	74	87	75	63	79
	D	0-7	Interior	149	149	149	149	149	141	149	149	133	149	144	126	149	137	121	149	131	115	148	126	109	136	117	94	126	106	84	118	95	75	110	86	64	99	79	84	91	72	77
			Exposed	149	137	120	149	130	114	144	124	105	137	118	96	131	113	89	125	105	83	120	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	149	149	149	149	149	144	149	149	135	149	149	127	149	142	120	149	134	114	149	127	105	141	116	89	128	102	78	118	89	64	107	79	87	94	71	78	84	59	71
			Exposed	149	141	120	149	132	112	149	124	101	143	118	91	134	111	83	127	101	77	121	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	145	150	150	136	150	143	129	150	150	136	150	123	110	140	113	93	130	97	81	122	85	72	115	76	60	104	64	84
			Exposed	150	150	136	150	141	127	150	132	119	150	125	112	146	118	101	139	111	92	133	101	85	122	86	73	114	75	59	101	62	81	90	84	72	81	75	60	74	64	53
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	149	137	151	142	130	151	130	119	139	121	108	127	112	94	118	100	84	107	90	75	94	82	64
			Exposed	151	151	144	151	147	135	151	139	127	151	132	121	146	126	115	138	120	106	131	115	98	119	101	84	105	88	74	90	79	61	79	71	83	71	60	75	59	81	64
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	133	139	139	123	139	131	115	139	123	104	135	116	94	128	108	85
			Exposed	139	139	139	139	139	139	139	139	139	139	139	135	139	139	128	139	139	123	139	139	123	139	134	117	139	134	115	92	125	105	82	118	95	74	110	86	64	100	79	84
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	135	140	140	123	140	134	114	140	124	100	140	116	88	130	105	79
			Exposed	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	72	115	77	60
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	76
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	78	114	90	71	104	82	60
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	133	140	140	126	140	140	120	140	128	107	140	118	92	131	106	80	121	93	71	113	83	60	100	75	83
			Exposed	140	140	133	140	140	125	140	138	117	140	130	109	140	123	99	140	117	90	134	111	83	122	94	72	111	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	144	146	146	136	146	137	123	146	125	113	143	115	97	133	102	85	125	90	76	118	80	64
			Exposed	146	146	146	146	146	142	146	146	133	146	139	125	146	131	118	146	124	111	146	118	101	134	103	86	124	88	74	116	77	61	105	65	84	94	57	75	85	80	63
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	144	150	150	140	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	76
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	78	114	90	71	104	82	60
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	76	118	88	64	107	79	87	94	71	79
			Exposed	140	140	140	140	140	132	140	140	118	140	140	109	140	140	123	140	140	99	134	111	83	122	94	72	111	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	144	146	146	136	146	137	123	146	125	113	143	115	97	133	102	85	125	90	76	118	80	64
			Exposed	146	146	146	146	146	142	146	146	133	146	139	125	146	131	118	146	124	111	146	118	101	134	103	86	124	88	74	116	77	61	105	65	84	94	57	75	85	80	63
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	144	150	150	140	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	76
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	115	126	123	104	126	116	94	126	108	85	128	108	85
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	117	126	124	105	126	115	92	125	105	82	118	95	74	110	86	64	100	79	84
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	114	127	124	100	127	116	88	127	105	79
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	125	101	127	115	87	127	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	128	135	132	119	135	122	108	135	115	96
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	132	135	132	120	135	121	106	135	111	92	130	96	81	122	85	72	115	77	60
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	137*	142*	139*	127	142*	130	119	141*	122	110
			Exposed	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	140*	142*	139*	127	142*	129	118	138*	120	106	127	111	93	118	100	84	108	90	76
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	110	126	109	86	121	99	78	114	90	71	104	82	60	104	82	60
			Exposed	126	126	126	126	126	124	126	126	118	126	126	112	126	123	103	126	118	96	126	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	120	127	127	107	127	118	92	127	106	80	121	93	71	113	83	60	100	75	83
			Exposed	127	127	127	127	127	125	127	127	117	127	127	109	127	123	99	127	117	90	127	111	83	122	94	72	111	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	123	135	125	113	135	115	97	133	102	85	125	90	76	118	80	64
			Exposed	135	135	135	135	135	133	135	135	125	135	135	125	135	131	118	135	124	111	135	118	101	134	103	86	124	88	74	116	77	61	105	65	84	94	57	75	85	80	63
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	131	142*	132	121	142*	123	112	131	115	98	122	105	88	114	95	79
			Exposed	142*	142*	142*	142*	142*	141*	142*	142*	142*	142*	142*	133	142*	138*	126	142*	131	120	142*	126	115	132	116	99	120	103	86	109	91	76	95	82	64	84	74	87	75	63	79
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	115	126	126	109	126	117	94	126	106	84	118	95	75	110	86	64	99	79	84	91	72	77
			Exposed	126	126	120	126	126	114	126	124	105	126	118	96	126	113	89	125	105	83	120	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	114	127	127	105	127	116	89	127	102	78	118	89	64	107	79	87	94	71	78	84	59	71
			Exposed	127	127	120	127	127	112	127	124	101	127	118	91	127	111	83	127	101	77	121	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	136	137	137	129	137	136	122	137	123	110	137	113	93	130	97	81	122	85	72	115	76	60	104	64	84
			Exposed	137	137	136	137	137	127	137	132	119	137	125	112	137	118	101	137	111	92	133	101	85	122	86	73	114	75	59	101	62	81	90	84	72	81	75	60	74	64	53
		27-45	Interior	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	142	146*	146*	137	146*	142	130	146*	130	119	139	121	108	127	112	94	118	100	84	107	90	75	94	82	64
			Exposed	146*	146*	142	146*	146*	135	146*	139	127	146*	132	121	146*	126	115	138	120	106	131	115	98	119	101	84	105	88	74	90	79	61	79	71	83	71	60	75	59	81	64

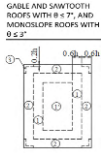
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

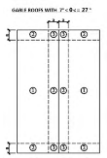
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

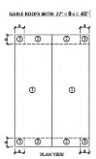
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

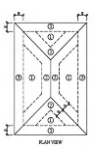












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

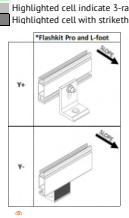
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	104	117	116	94	117	108	85
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	105	117	115	92	117	105	82	117	95	74	110	86	64	100	79	84
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	114	118	118	100	118	116	88	118	105	79
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	101	118	115	87	118	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	119*	127*	122*	108	127*	115*	96
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	120*	127*	121*	106	127*	111*	92	127*	96	81	122*	85	72	115*	97	80
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	119*	122*	122*	110*	122*	122*	110*
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	118*	122*	120*	106*	122*	111*	93	118*	100	84	108*	90	76
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	86	117	99	78	114	90	71	104	82	60
			Exposed	117	117	117	117	117	117	117	117	117	112	117	117	103	117	117	96	117	113	89	117	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	80	118	93	71	113	83	60	100	75	83
			Exposed	118	118	118	118	118	118	118	118	117	109	118	118	99	118	118	90	118	111	83	118	94	72	111	82	58	96	72	80	85	60	71	75	52	96	72	80	89	64	74	53
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	123*	127*	125*	113*	127*	115*	97	127*	102	85	125*	90	76	118*	80	64
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	125*	127*	127*	118*	127*	124*	111*	127*	118*	101	127*	103	86	124*	88	74	116*	77	61	105	65	84	94	57	75	85	80	63	85	80	63
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	112*	122*	115*	98	122*	105*	88	114*	95	79
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	120*	122*	122*	115*	122*	116*	99	120*	103*	86	108*	91	76	95	82	64	84	74	87	75	63	79
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	94	117	106	84	117	95	75	110	86	64	99	79	84	91	72	77
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	89	118	118	85	118	106	84	117	95	75	110	86	64	99	79	84
			Exposed	118	118	118	118	118	112	118	118	101	118	118	91	118	111	83	118	101	77	118	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	122*	129*	123*	110	129*	113	93	129*	97	81	122*	85	72	115	76	60	104	64	84
			Exposed	129*	129*	129*	129*	129*	127*	129*	129*	119*	129*	125*	112	129*	118	101	129*	111	92	129*	101	85	122*	86	73	114	75	59	101	62	81	90	84	72	81	75	60	74	64	53
		27-45	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	119*	127*	121*	108	127*	112*	94	118*	100	84	107	90	75	94	82	64
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	121*	127*	126*	115*	127*	120*	106	127*	115*	98	119*	101	84	105	88	74	90	79	61	79	71	83	71	60	75	59	81	64
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	104	115	115	94	115	108	85
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	114*	118*	118*	100	118*	116*	88	118*	105*	79
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	101	118*	118*	85	118*	100	76	118*	88	64	107*	79	87	95	71	79
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	108*	111*	111*	96*	111*	111*	96*
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	92*	111*	111*	96*	81	111*	85*	72	111*	77	60
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	97	115	109	86	115	99	78	114	90	71	104	82	60
			Exposed	115	115	115	115	115	115	115	115	115	112	115	115	103	115	115	96	115	113	89	115	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	107*	118*	118*	92	118*	106*	80	118*	93	71	113*	83	60	100	75	83
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	117*	118*	118*	109*	118*	118*	99	118*	117*	90	118*	111*	83	118*	94	72	111*	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	101*	111*	103*	86*	111*	88*	74	111*	77	61	105*	65	84	94*	57	75	85*	80	63
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	99*	104*	103*	86*	104*	91*	76	95*	82*	64	84*	74	87	75	63	79
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	94	117	106	84	117	95	75	110	86	64	99	79	84	91	72	77
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	105	120*	116*	89	120*	102	78	118*	89	64	107	79	87	94	71	78	84	59	71
			Exposed	120*	120*	120*	120*	120*	112	120*	120*	101	120*	118*	91	120*	111	83	120*	101	77	120*	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	110*	118*	113*	93	118*	97*	81	118*	85	72	115*	76	60	104*	64	84
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	112*	118*	118*	101*	118*	111*	92	118*	101*	85	118*	86	73	114*	75	59	101*	62	81	90	84	72	81	75	60	74	64	59
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	108*	114*	112*	94*	114*	100*	84	107*	90*	75	94*	82	64
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	106*	114*	114*	98*	114*	101*	84	105*	89*	74	90*	79	61	79	71	83	71	60	75	59	81	64
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	107	107	94	107	107	85
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	105	107	107	92	107	105	82	107	95	74	107	86	64	100	79	84
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	100*	108*	108*	88*	108*	105*	79
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	107*	108*	108*	87*	108*	108*	76	108*	88*	64	107*	79	87	95*	71	79
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	81*	91*	85*	72*	91*	77*	60
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	84*	86*	86*	76*
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	107	107	94	107	107	85
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	103	107	107	96	107	107	89	107	99	78	107	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	107*	108*	108*	92*	108*	106*	80	108*	93*	71	107*	83	60	100*	75	83
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	99*	108*	108*	90*	108*	108*	83	108*	94*	72	108*	82	58	96*	72	80	85*	60	71	75	82	59	64	74	55
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	86*	91*	88*	74*	91*	77*	61	91*	65	84	91*	57	75	85*	80	63
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	79*
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	82*	64	84*	74*	87	75*	63	79
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	109	111	111	94	111	106	84	111	95	75	110	86	64	99	79	84	91	72	77
			Exposed	111	111	111	111	111	111	111	111	105	111	111	96	111	111	89	111	105	83	111	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	105*	115*	115*	89	115*	102*	78	115*	89	64	107*	79	87	94*	71	78	84	59	71
			Exposed	115*	115*	115*	115*	115*	112*	115*	115*	101*	115*	115*	91	115*	111*	83	115*	101*	77	115*	93	71	108*	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	93*	100*	97*	81*	100*	85*	72	100*	76	60	100*	64	84
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	92*	100*	100*	85*	100*	86*	73	100*	75	59	100*	62	81	90*	84	72	81*	75	60	74	64	53
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	84*	94*	88*	74*	90*	79*	61	79*	71	83	71	60	75	59	81	64

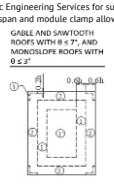
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

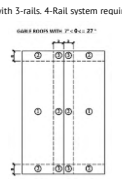
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

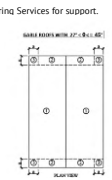
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

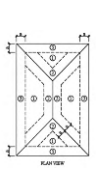












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

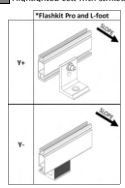
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	94	98	98	85
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	92	98	98	82	98	95	74	98	86	64	98	79	84
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	88*	94*	94*	79*			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	87*	94*	94*	76*	94*	88*	64	94*	79*	87	94*	71	79
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	72*	78*	78*	72*	78*	77*	60*
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	86	98	98	78	98	90	71	98	82	60
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	96	98	98	89	98	98	80	85	91	73	77	83	62	70	76	82	59					
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	80*	94*	93*	71	94*	83*	60	94*	75*	83
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	94*	94*	83*	94*	94*	72*	94*	82*	58	94*	72*	80	85*	60	71	75*	82	59	64	74	58
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	76*	78*	78*	64*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	74*	78*	77*	61*	78*	78*	65*	84	78*	57	75	78*	80	63		
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	64*	73*	73*	87*	73*	63*	79
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	94	103	103	84	103	95	75	103	86	64	99	79	84	91	72	77
			Exposed	103	103	103	103	103	103	103	103	103	103	103	96	103	103	89	103	103	83	103	98	77	103	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	59
		7-20	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	89*	104*	102*	78	104*	89*	64	104*	79	87	94*	71	78	84*	59	71
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	101*	104*	104*	91*	104*	104*	83*	104*	101*	77	104*	93*	71	104*	80*	88	93*	67	77	81*	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	81*	85*	85*	72*	85*	76*	60	85*	64	84
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	73*	85*	75*	59	85*	62	81	85*	84	72	81*	75	60	74*	64	56
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	75*	81*	81*	64*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	74*	81*	79*	62*	79*	71*	83	71*	60	75	59	81	64
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	78	91	89	68	91	80	85	91	73	77	83	62	70
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	79*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	76*	82*	82*	64*	82*	79*	87	82*	71*	79
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	86	91	91	78	91	90	71	91	82	60
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	78	91	89	68	91	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	80*	82*	82*	71*	82*	82*	60	82*	75*	83
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	72*	82*	82*	58	82*	72*	80	82*	60	71	75*	82	59	64*	74	59
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	64*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	65*	84*	67*	57*	75	67*	80*	63
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	84	96	95	75	96	86	64	96	79	84	91	72	77
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	96	83	96	96	77	96	87	64	96	78	83	88	70	74	80	85	63	73	78	56	63	72	56
		7-20	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	89*	90*	90*	78*	90*	89*	64	90*	79*	87	90*	71*	78	84*	59	71
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	83*	90*	90*	77*	90*	90*	71*	90*	80*	88	90*	67	77	81*	88	64	72*	78	56	60	70	49	83	59	44
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	60*	74*	64*	84
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	59*	74*	62*	81	74*	84	72	74*	74*	75	60	74*	64	59
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	83*	70*	60*	75	59*	81*	64
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	74	86	86	64	86	79	84
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	87	72*	71*	79
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	78	86	86	71	86	82	60
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	78	86	86	68	86	80	85	86	73	77	83	62	70	76	82	59
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	72*	72*	72*	72*	72*	83*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	58*	72*	72*	80	72*	60*	71	72*	82	59	64*	74	59
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	84*	60*	57*	75*	60*	80*	63
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	85*	57*	57*	79*
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	84	90	90	75	90	86	64	90	79	84	90	72	77
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	90	90	90	87	64	90	78	83	88	70	74	80	85	63	73	78	56	63	72	56
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	79*	79*	64*	79*	79*	87	79*	71*	78	79*	59	71
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	79*	79*	71*	79*	79*	88	79*	67*	77	79*	88	64	72*	78	56	60	70	49	83	59	44
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	60*	66*	64*	84*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	84*	72	66*	75	60	66*	64	53
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	83*	62*	60*	75*	59*	81*	64

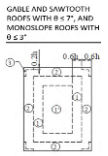
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

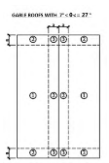
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

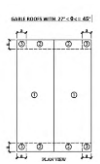
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

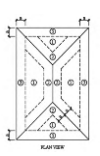












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

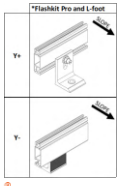
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	74	81	81	64	81	79	84		
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	87*	64*	64*	79*		
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	81	81	71	81	81	60		
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	81	81	68	81	80	85	81	73	77
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	80*	64*	60*	71
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	75	85	85	64		
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	83	85	85	77	85	85	64	85	78	83	85	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	64*	71*	71*	87*	71*	71*	78
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	67*	77	71*	88*	64	71*	78	56	60*	70	49	83*	59	44
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	84*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	81*	59*	84*	72*	59*	75*	60	59*	64	50
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	83*	84*	84*	75*	84*	81*	64*
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	84
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	87*	58*	58*	79*
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	60		
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	68	77	77	85	77	73	77
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	80*	58*	58*	71*	58*	82*	59	58*	74*	50
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	63*
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	75	81	81	64	81	79	84	81	72	77
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77	81	81	64	81	78	83	81	70	74	80	85	63	73	78	56	63	72	56
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	87*	64*	64*	78
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	77*	64*	88*	64	64*	78*	56	60*	70	49	83*	59	44
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	75*	60	80*	64*	59
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	75*	76*	76*	64*

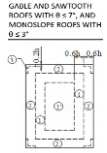
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

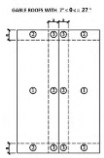
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

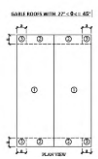
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

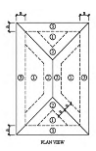












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

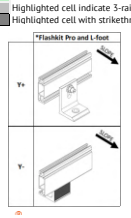
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	120	127	127	114	127	121	100	127	112	90	122	100	82	115	92	76	105	85	70	96	79	58
			Exposed	127	127	125	127	127	118	127	127	111	127	122	101	127	117	95	127	111	89	125	103	85	115	92	76	103	84	68	94	77	55	86	71	45	80	60	39	74	51	34
		7-20	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	126*	127*	127*	119*	127*	127*	113	127*	121*	96	127*	109	87	123*	96	79	114*	88	72	100	81	60	92	75	49
			Exposed	127*	127*	125*	127*	127*	117*	127*	127*	108	127*	123*	98	127*	116*	91	127*	108	86	127*	99	81	115*	88	73	99	80	58	90	72	46	82	60	39	75	49	34	69	41	46
		20-27	Interior	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	116*	126*	117*	99	126*	103	90	126*	93	82	119*	85	76	110*	79	69
			Exposed	126*	126*	126*	126*	126*	126*	126*	126*	125*	126*	126*	117*	126*	123*	108*	126*	117*	99	126*	108*	93	126*	94	83	117*	84	75	106*	77	64	96	70	50	88	56	41	82	46	37
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	114*	121*	116*	99*	121*	105*	91	114*	95	84	100*	88	78			
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	113*	121*	119*	103*	121*	106*	92	112*	94	83	97	86	76	88	79	68	81	73	55	75	65	45
	C	0-7	Interior	127	127	127	127	127	121	127	127	115	127	126	106	127	120	98	127	115	93	127	108	88	118	96	79	108	87	72	97	80	59	89	74	48	83	65	41	77	55	36
			Exposed	127	120	98	127	113	91	126	104	85	120	97	80	114	91	75	107	86	71	99	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	127*	127*	127*	127*	127*	121*	127*	127*	114*	127*	127*	102	127*	120*	95	127*	114*	89	127*	104	84	119*	91	75	104	83	64	93	75	50	85	67	41	78	53	36	72	44	48
			Exposed	127*	120*	95	127*	111	88	127*	100	82	120*	93	76	114*	87	72	103	82	63	96	77	54	86	68	41	77	52	36	70	41	46	68	41	77	52	36	41	45	48	36	39	43	32
		20-27	Interior	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	126*	121*	126*	126*	114*	126*	120*	104	126*	114*	96	126*	97	86	121*	88	77	112*	80	70	99	73	55	91	62	44	85	50	39
			Exposed	126*	126*	114*	126*	119*	101	126*	110*	93	126*	99	87	126*	93	82	120*	87	77	115*	82	72	100	73	56	90	60	43	83	47	37	76	39	49	70	41	53	44	36	44	39	49	32
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	116*	121*	121*	109*	121*	111*	95	116*	98	86	101*	89	78	92	82	72	84	76	60	78	70	49
			Exposed	121*	121*	121*	121*	121*	115*	121*	119*	104*	121*	113*	96	121*	104*	90	115*	97	85	106*	92	80	92	82	72	83	75	58	76	66	46	67	53	39	54	44	35	43	39	46
	D	0-7	Interior	127	127	117	127	127	109	127	121	99	127	115	93	127	108	88	123	100	83	118	95	78	105	85	71	95	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	127	107	87	121	99	81	115	92	76	107	87	72	99	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	127*	127*	116*	127*	127*	105	127*	121*	96	127*	114*	90	127*	104	84	124*	96	79	118*	91	75	101	81	61	91	73	47	82	61	39	75	49	34	68	41	46	55	36	41
			Exposed	127*	103	84	122*	95	78	115*	88	72	104	82	64	96	77	54	90	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	36	49	36	27
		20-27	Interior	126*	126*	126*	126*	126*	123*	126*	126*	116*	126*	121*	105	126*	114*	96	126*	104	90	126*	96	85	119*	86	76	108*	78	66	96	71	51	88	56	41	82	45	36	76	39	49
			Exposed	126*	114*	96	126*	101	89	126*	94	83	120*	87	77	115*	82	72	107*	77	64	99	73	55	89	57	42	81	44	36	74	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117*	121*	121*	109*	121*	116*	100*	121*	110*	94	114*	96	84	98	87	76	89	80	69	81	73	55	75	64	45	67	53	39
			Exposed	121*	121*	108*	121*	115*	98	121*	106*	91	116*	97	86	106*	92	80	97	86	76	91	82	72	82	74	56	74	62	43	62	50	37	48	41	49	40	36	44	36	49	39
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	113	100	119	112	90	119	100	82	115	92	76	105	85	70	96	79	58
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	113	119*	119*	96	119*	109	87	119*	96	79	114*	88	72	100	81	60	92	75	49
		7-20	Interior	119*	119*	119*	119*	119*	117*	119*	119*	108	119*	119*	98	119*	116*	91	119*	108	86	119*	99	81	115*	88	73	99	80	58	90	72	46	82	60	39	80	58	41	69	41	46
			Exposed	119*	119*	119*	119*	119*	117*	119*	119*	108	119*	119*	98	119*	116*	91	119*	108	86	119*	99	81	115*	88	73	99	80	58	90	72	46	82	60	39	80	58	41	69	41	46
		20-27	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	116*	124*	117*	99	124*	103	90	124*	93	82	119*	85	76	110*	79	69
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	117*	124*	123*	108*	124*	117*	99	124*	108*	93	124*	94	83	117*	84	75	106	77	64	96	70	50	88	56	41	82	46	37
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	114*	121*	116*	99*	121*	105*	91	114*	95	84	100*	88	78			
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	113*	121*	119*	103*	121*	106*	92	112*	94	83	97	86	76	88	79	68	81	73	55	75	65	45
	C	0-7	Interior	119	119	119	119	119	119	119	119	115	119	119	106	119	119	98	119	115	93	119	108	88	118	96	79	108	87	72	97	80	59	89	74	48	83	65	41	77	55	36
			Exposed	119	119	98	119	113	91	119	104	85	119	97	80	114	91	75	107	86	71	99	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	119*	119*	119*	119*	119*	114*	119*	119*	102	119*	119*	95	119*	114*	89	119*	104	84	119*	91	75	104	83	64	93	75	50	85	67	41	78	53	36	72	44	48			
			Exposed	119*	119*	95	119*	111	88	119*	100	82	119*	93	76	114*	87	72	103	82	63	96	77	54	86	68	41	77	52	36	70	41	46	55	36	41	45	48	36	39	43	32
		20-27	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	121*	124*	124*	114*	124*	120*	104	124*	114*	96	124*	97	86	121*	88	77	112*	80	70	99	73	55	91	62	44	85	50	39
			Exposed	124*	124*	114*	124*	119*	101	124*	110*	93	124*	99	87	124*	93	82	120*	87	77	115*	82	72	100	73	56	90	60	43	83	47	37	76	39	49	70	35	43	58	46	39
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	116*	121*	121*	109*	121*	111*	95	116*	98	86	101*	89	78	92	82	72	84	76	60	78	70	49
			Exposed	121*	121*	108*	121*	115*	98	121*	106*	91	116*	97	86	106*	92	80	97	86	76	91	82	72	82	74	56	74	62	43	62	50	37	48	41	49	40	36	44	36	49	39
	D	0-7	Interior	119	119	119	119	119	109	119	119	99	119	115	93	119	108	88	119	100	83	118	95	78	105	85	71	95	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	119	107	87	119	99	81	115	92	76	107	87	72	99	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	119*	119*	116*	119*	119*	105	119*	119*	96	119*	114*	90	119*	104	84	119*	96	79	118*	91	75	101	81	61	91	73	47	82	61	39	75	49	34	68	41	46	55	36	41
			Exposed	119*	103	84	119*	95	78	115*	88	72	104	82	64	96	77	54	90	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	36	49	36	27
		20-27	Interior	126*	126*	126*	126*	126*	123*	126*	126*	116*	126*	121*	105	126*	114*	96	126*	104	90	126*	96	85	119*	86	76	108*	78	66	96	71	51	88	56	41	82	45	36	76	39	49
			Exposed	126*	114*	96	126*	101	89	126*	94	83	120*	87	77	115*	82	72	107*	77	64	99	73	55	89	57	42	81	44	36	74	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117*	121*	121*	109*	121*	116*	100*	121*	110*	94	114*	96	84	98	87	76	89	80	69	81	73	55	75	64	45	67	53	39
			Exposed	121*	121*	108*	121*	115*	98	121*	106*	91	116*	97	86	106*	92	80	97	86	76	91	82	72	82	74	56	74	62	43	62	50	37	48	41	49	40	36	44	36	49	39
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	100	105	105	90	105	100	82	105	92	76	105	85	70	96	79	58
			Exposed	105	105	105	105	105	105	105	105	105	105	105	101	105	105	95	105	105	89	105	103	85	105	92	76	103	84	68	94	77	55	86	71	45	80	60	39	74	51	34
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	96	105	105	87	105	96	79	105	88	72	100	81	60	92	75	49
			Exposed	105	105	105	105	105	105	105	105	105	105	105	98	105	105	91	105	105	86	105	99	81	105	88	73	99	80	58	90	72	46	82	60	39	75	49	34	69	41	46
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	99*	115*	103*	90	115*	93*	82	115*	85	76	110*	79	69
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	108*	115*	115*	99*	115*	108*	93*	115*	94*	83	115*	84	75	106*	77	64	96*	70	50	88	56	41	82	46	37			
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	103*	111*	106*	92*	111*	94*	83	97*	86*	76	88*	79	68
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	103*	111*	106*	92*	111*	94*	83	97*	86*	76	88*	79	68	81	73	55	75	65	45
	C	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	98	105	105	93	105	105	88	105	96	79	105	87	72	97	80	59	89	74	48	83	65	41	77	55	36
			Exposed	105	105	98	105	105	91	105	104	85	105	97	80	105	91	75	105	86	71	99	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	105	105	105	105	105	105	105	105	105	102	105	105	105	105	95	105	105	89	105	104	84	105	91	75	104	83	64	93	75	50	85	67	41	78	53	36	72	44	48
			Exposed	105	105	95	105	105	88	105	100	82	105	93	76	105	87	72	103	82	63	96	77	54	86	68	41	77	52	36	70	41	46	55	36	41	45	48	36	39	43	32
		20-27	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	104*	115*	115*	96*	115*	97*	86	115*	88	77	112*	80	70	99*	73	55	91	62	44	85	50	39
			Exposed	115*	115*	114*	115*	115*	101*	115*	110*	93*	115*	99*	87	115*	93*	82	115*	87	77	115*	82	72	100*	73	56	90	60	43	83	47	37	76	39	49	70	35	43	58	46	39
		27-45	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	109*	111*	111*	95*	111*	98*	86*	101*	89*	78	92*	82	72	85*	76	60	78	70	49
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	104*	111*	111*	96*	111*	104*	90*	111*	97*	85*	106*	92*	80	92*	82	72	83	75	58	76	66	46	67	53	39	54	44	35	43	39	46
	D	0-7	Interior	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	100	83	105	95	78	105	85	71	95	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	105	105	87	105	99	81	105	92	76	105	87	72	99	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	115*	115*	115*	115*	115*	105	115*	115*	96	115*	114*	90	115*	104	84	115*	96	79	115*	91	75	101	81	61	91	73	47	82	61	39	75	49	34	68	41	46	55	36	41
			Exposed	115*	103	84	115*	95	78	115*	88	72	104	82	64	96	77	54	90	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	36	49	36	27
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	116*	117*	117*	105*	117*	114*	96	117*	104*	90	117*	96	85	117*	86	76	108*	78	66	96	71	51	88	56	41	82	45	36	76	39	49
			Exposed	117*	114*	96	117*	101*	89	117*	94	83	117*	87	77	115*	82	72	107*	77	64	99	73	55	89	57	42	81	44	36	74	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	109*	116*	116*	100*	116*	110*	94*	114*	96*	84	98*	87	76	89	80	69	81	73	55	75	64	45	67	53	39
			Exposed	116*	116*	108*	116*	115*	98*	116*	106*	92*	116*	97*	86	106*	92*	80	97*	86	76	92*	82	72	82	74	56	74	62	43	62	50	37	48	41	49	40	36	44	36	49	39

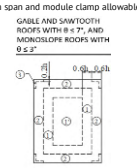
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

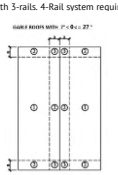
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

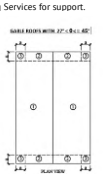
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

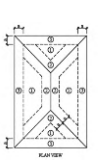












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

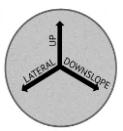
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

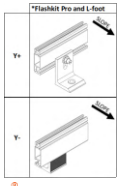
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	82	94	92	76	94	85	70	94	79	58
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	89	94	94	85	94	92	76	94	84	68	94	77	55	86	71	45	80	60	39	74	51	34
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	87*	95*	95*	79	95*	88*	72	95*	81	60	92*	75	49
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	91*	95*	95*	86*	95*	95*	81	95*	88*	73	95*	80	58	90*	72	46	82*	60	39	75	49	34	69	41	46
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	82*	88*	85*	76*	88*	79*	69*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	83*	88*	84*	75*	88*	77*	64	88*	70*	50	88*	56	41	82*	46	37
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	76*	81*	81*	79*	68*	81*	73*	55	75*	65*	45
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	79	94	87	72	94	80	59	89	74	48	83	65	41	77	55	36
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	80	94	91	75	94	86	71	94	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	89*	95*	95*	84*	95*	91*	75	95*	83*	64	93*	75	50	85*	67	41	78	53	36	72	44	48
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	82*	95*	93*	76	95*	87*	72	95*	82*	63	95*	77	54	90*	68	41	77	52	36	70	41	46	68	48	33	41	45	32	39	43	32
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	86*	88*	88*	77*	88*	80*	70*	88*	73*	55	88*	62	44	85*	50	39
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	87*	88*	88*	88*	87*	77*	88*	82*	72*	88*	73*	56	88*	60	43	83*	47	37	76*	39	49	70*	35	43	58	46	39	58	46	39
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78*	81*	81*	72*	81*	76*	60	78*	70*	49
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	72*	81*	81*	75*	58	76*	66*	46	67*	53	39
40	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	83	94	94	78	94	85	71	94	85	71	94	78	56	87	71	45	80	60	39	74	50	34
			Exposed	94	94	87	94	94	81	94	92	76	94	87	72	94	82	63	94	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	95*	95*	95*	95*	84	95*	95*	79	95*	91*	75	95*	81	61	91*	73	47	82	61	39	75	49	34	68	41	46
			Exposed	95*	95*	84	95*	95*	78	95*	88*	72	95*	82	64	95*	77	54	90*	73	46	85	66	41	76	49	35	66	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	85*	96*	86*	76*	96*	78*	66	96*	71	51	88*	56	41	82*	45	36	76*	39	49
			Exposed	96*	96*	96*	96*	96*	89*	96*	94*	83*	96*	87*	77*	96*	82*	72	96*	77*	64	96*	73	55	89*	57	42	81*	44	36	74*	37	47	64	49	41	53	44	36	44	39	32
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	87*	76*	88*	80*	69*	81*	73*	55	75*	64	45	67	53	39
			Exposed	88*	88*	88*	88*	88*	86*	88*	88*	86*	88*	88*	80*	88*	86*	76*	88*	82*	72*	82*	74*	56	74*	62	43	62	50	37	48	41	49	40	36	44	36	49	39	32	46	36	29
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
			Exposed	90	90	90	90	90	90	90	90	85	90	90	80	90	90	75	90	86	71	90	82	63	90	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	82*	83*	83*	76*	83*	83*	72*	83*	82*	63	83*	77*	54	83*	68*	41	77*	52	36	70*	41	46	55	36	41	45	48	36	39	43	32
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	55*	68*	62*	44	68*	50	39
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	56*	68*	60*	43	68*	47	37	68*	39	49	68*	35	43	58*	46	39
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	64*	50*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	58*	64*	64*	46	64*	53*	39	54*	44	35
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	93	93	88	93	93	83	93	93	78	93	85	71	93	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	93	93	87	93	93	81	93	92	76	93	87	72	93	82	63	93	77	55	89	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	90*	92*	92*	84*	92*	92*	79	92*	91*	75*	92*	81*	61	91*	73*	47	79*	59	39	75*	49	34	68	41	46	55	36	41
			Exposed	92*	92*	84*	92*	92*	78*	92*	88*	72	92*	82*	64	92*	77*	54	90*	73*	46	85*	66	41	76*	49	35	66	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64	75*	75*	55	75*	57	42	75*	44	36	74*	37	47	64*	49	41	53	44	36	44	39	32
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64*	75*	75*	54	75*	73*	46	75*	66*	41	75*	49	35	66*	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	51*	62*	56*	41	62*	45	36	62*	39	49
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	57*	42	62*	44	36	62*	37	47	62*	49	41	53*	44	36	44	39	32
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	55*	58*	58*	45*	58*	53*	39
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	43	58*	50*	37	48*	41	49	40	36	44	36	49	39
50	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	76	84	84	70	84	79	58
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	76	84	84	84	84	84	77	55	84	71	45	80	60	39	74	51	34
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60*	68*	68*	49
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60*	39	68*	49	34	68*	41	46
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	56*	41	56*	46*	37
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	45*
	D	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	79	84	84	72	84	80	59	84	74	48	83	65	41	77	55	36
			Exposed	84	84	84	84	84	84	84	84	84	84	84	80	84	84	75	84	84	71	84	82	63	84	74	49	82	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	50	68*	68*	67*	41	68*	53*	36	68*	44	48
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*	68*	68*	54*	68*	68*	41	68*	52	36	68*	41	46	55*	36	41	45	48	36	39	43	32
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	44*	56*	50*	39
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	43	56*	47*	37	56*	39	49	56*	35	43	56*	46	30
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	87	78	87	85	71	87	78	56	87	71	45	80	60	39	74	50	34	67	43	46
			Exposed	87	87	87	87	87	81	87	87	76	87	87	72	87	82	63	87	77	55	87	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	61*	75*	73*	47	75*	61*	39	75*	49	34	68*	41	46	55	36	41
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	72*	75*	75*	64*	75*	75*	54	75*	73*	46	75*	66*	41	75*	51	35	66*	40	45	51	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	51*	62*	56*	41	62*	45	36	62*	39	49
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	57*	42	62*	44	36	62*	37	47	62*	49	41	53*	44	36	44	39	32
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	55*	58*	58*	45*	58*	53*	39
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	43	58*	50*	37	48*	41	49	40	36	44	36	49	39

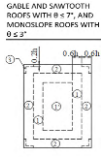
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

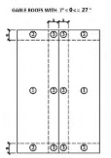
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

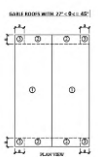
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

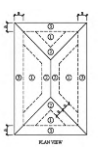












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

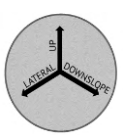
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

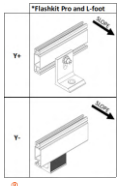
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	77	77	70	77	77	58			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	77	77	68	77	77	55	77	71	45	77	60	39	74	51	34
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	46*	58*	58*	39	58*	49*	34	58*	41	46
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	46*	37*
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	77	77	59	77	74	48	77	65	41	77	55	36
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	77	77	71	77	77	63	77	74	49	77	64	40	75	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	50*	58*	58*	41	58*	53*	36	58*	44	48
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	41	58*	52*	36	58*	41	46	55*	36	41	45*	48	36	39	43	32
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	48*	39*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	39*	48*	48*	35	43	48*	46	39
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	44*	35*	43*	39*	46
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	81	81	71	81	78	56	81	71	45	80	60	39	74	50	34	67	43	46
			Exposed	81	81	81	81	81	81	81	81	76	81	81	72	81	81	63	81	77	55	81	73	48	80	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	47	64*	61*	39	64*	49*	34	64*	41	46	55*	36	41
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	54*	64*	64*	46	64*	64*	41	64*	49*	35	64*	40	45	51*	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41*	52*	45*	36	52*	39	49
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42*	52*	44*	36	52*	37	47	52*	49	41	52*	44	36	44*	39	32
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	45*	50*	50*	39*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43*	50*	50*	37	48*	41*	49	40*	36	44	36	49	39
70	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	71	72	72	58
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	49*
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	39*	50*	41*	46
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	59	72	72	48	72	65	41	72	55	36
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	63	72	72	49	72	64	40	72	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41*	50*	50*	36	50*	44*	48
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41*	50*	50*	36	50*	41*	46	50*	36	41	45*	48	36	39*	43	32
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	39*	49*	41*	35*	43	41*	46	39						
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	46*
	D	0-7	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	71	75	75	56	75	71	45	75	60	39	74	50	34	67	43	46
			Exposed	75	75	75	75	75	75	75	75	75	75	75	72	75	75	63	75	75	55	75	73	48	75	61	39	73	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	47*	55*	55*	39	55*	49*	34	55*	41	46	55*	36	41
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	54*	55*	55*	46*	55*	55*	41	55*	49*	35	55*	40	45	51*	35	39	41	46	34	36	40	30	49	36	27
		20-27	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	41*	46*	45*	36	46*	39*	49
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	44*	36	46*	37*	47	46*	49	41	46*	44	36	44*	39	32
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	43*	41*	49	40*	36*	44	36*	49	39					
80	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	60	39	67	51	34
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	39*	44*	41*	46
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	48	67	65	41	67	55	36
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	67	49	67	64	40	67	52	35	67	43	46	56	38	41	47	34	36
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	36*	44*	41*	48
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	36*	44*	41*	46	44*	36*	41	44*	48	36	39*	43	32
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	D	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	56	71	71	45	71	60	39	71	50	34	67	43	46
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	55	71	71	48	71	61	39	71	49	51	63	41	44	52	36	38	43	48	34	38	42	30
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	39*	49*	49*	34	49*	41*	46	49*	36	41
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	41*	49*	49*	35	49*	40*	45	49*	35	39	41*	46	34	36	40	30	49	36	27
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	39*	49*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	47*	40*	49*	41	40*	44	36	40*	39	32
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	38*	49*	38*	36*	44	36*	49*	39					

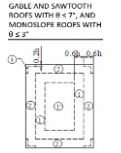
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

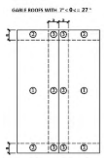
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

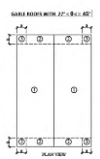
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

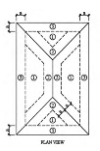












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

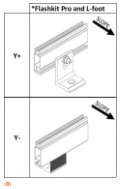
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	45	63	60	39	63	51	34
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	46*
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	48	63	63	41	63	55	36
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	49	63	63	40	63	52	35	63	43	46
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	46*	39*	39*	36*	39*	36*	41	39*	48*	36
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	56	67	67	45	67	60	39	67	50	34
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	67	55	67	67	48	67	61	39	67	49	51	63	67	41	44	52	36	38	43	48	34	38	42
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	34*	43*	41*	46	43*	36*	41
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	35*	43*	40*	45	43*	35*	39	41*	46	34	36*	40	49	43*	36	27
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	47*	36*	49*	41	36*	44*	36	36*	39	32
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	49*	34*	34*	44*	34*	34*	49*	33
100	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	45	60	60	39	60	51	34
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	46*
		20-27	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
		27-45	Interior	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*
			Exposed	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	48	60	60	41	60	55	36
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	49	60	60	40	60	52	35	60	43	46
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	46*	36*	36*	41	36*	48*	36	36*	43*	32
		20-27	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	44*	29*	29*	43*	29*	44*	39*	29*	44*	39*
		27-45	Interior	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*
			Exposed	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	28*	42*
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	56	63	63	45	63	60	39	63	50	34
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	48	63	61	39	63	49	51	63	63	44	52	36	38	43	48	34	38	42	36
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	46*	39*	36*	41
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	45	39*	35*	39	39*	46*	34	36*	40	49	43*	36	27
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	49*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	47*	33*	49*	41*	33*	44*	36	33*	39*	32
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	47*	31*	31*	44*	31*	31*	47*	39*

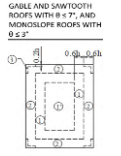
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

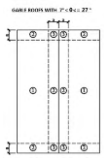
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

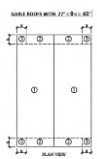
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

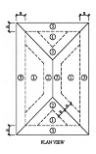












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

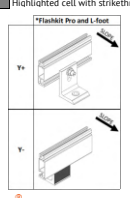
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	135	150	142	125	150	132	116	145	124	106	137	117	95	129	110	87
			Exposed	150	150	150	150	150	150	150	150	144	150	150	136	150	148	130	150	141	124	150	135	119	146	125	107	135	117	94	126	106	84	119	96	76	112	88	65	102	80	58
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	136	151	148	125	151	135	115	151	125	102	142	117	90	132	107	81
			Exposed	151	151	151	151	151	151	151	151	147	151	151	138	151	151	131	151	146	124	151	139	118	151	126	103	140	116	89	129	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	145	130	151	133	120	151	124	111	144	116	98
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	149	133	151	134	121	151	123	100	140	113	94	131	98	82	123	87	73	116	78	62
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	150	152	150	138	152	140	128	152	131	120	143	124	113
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	142	152	152	141	152	129	108	139	121	108	128	113	95	119	102	85	110	92	77			
	C	0-7	Interior	150	150	150	150	150	150	150	150	148	150	150	140	150	150	133	150	145	127	150	139	122	150	128	112	139	119	98	130	111	88	122	100	79	115	91	72	106	84	61
			Exposed	150	150	133	150	143	126	150	136	119	150	130	114	145	124	105	138	119	97	132	114	91	122	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	143	151	151	135	151	151	128	151	143	122	151	130	109	145	119	94	133	108	82	123	95	73	115	84	61	102	76	84
			Exposed	151	151	135	151	149	126	151	140	119	151	132	112	151	125	101	144	119	92	136	113	85	124	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	139	125	151	127	115	145	117	99	135	104	87	126	92	77	119	82	65
			Exposed	151	151	151	151	151	144	151	150	134	151	141	126	151	151	133	120	151	126	114	148	120	104	136	105	88	125	90	76	117	79	63	107	70	86	96	58	77	87	81	65
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	145	133	152	134	122	144	124	114	133	116	100	123	107	89	115	96	81
			Exposed	152	152	152	152	152	151	152	152	142	152	146	134	152	139	128	152	133	122	148	127	116	133	117	101	122	105	88	112	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	150	150	150	150	150	142	150	150	134	150	146	128	150	139	122	150	133	117	149	127	111	137	118	96	127	108	85	119	97	76	112	88	65	101	80	57	92	73	78
			Exposed	150	139	122	150	131	115	146	125	107	139	119	98	132	114	91	127	107	84	122	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	151	151	151	151	151	145	151	151	136	151	151	128	151	143	122	151	136	116	151	129	107	142	118	91	130	104	79	120	91	68	110	80	58	96	72	80	86	61	72
			Exposed	151	143	121	151	134	114	151	126	103	145	119	93	136	113	85	129	103	78	123	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	147	151	151	138	151	145	130	151	137	124	151	125	112	142	114	95	132	99	83	123	87	73	116	78	61	106	68	85
			Exposed	151	151	137	151	143	128	151	134	121	151	126	114	148	120	104	141	114	94	134	104	86	124	88	74	115	76	60	102	63	82	92	86	73	83	77	61	75	65	54
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	151	138	152	144	132	152	132	121	141	122	110	129	114	96	119	102	85	109	91	77	96	83	66
			Exposed	152	152	145	152	149	136	152	140	129	152	133	122	148	127	116	140	121	109	132	116	100	120	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	125	141	132	116	141	124	106	137	117	95	129	110	87
			Exposed	141	141	141	141	141	141	141	141	141	141	141	136	141	141	130	141	141	124	141	135	119	141	125	107	135	117	94	126	106	84	119	96	76	112	88	65	102	80	58
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	125	141	135	115	141	125	102	141	117	90	132	107	81
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	124	141	139	118	141	126	103	140	116	89	129	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	145	130	147	133	120	147	124	111	144	116	98
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	133	147	134	121	147	123	109	140	113	94	131	98	82	123	87	73	116	78	62
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	150	138	151	140	128	151	131	120	143	124	113
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	141	129	151	130	119	139	121	108	128	113	95	119	102	85	110	92	77
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	139	122	141	128	112	139	119	98	130	111	88	122	100	79	115	91	72	106	84	61
			Exposed	141	141	133	141	141	126	141	136	119	141	130	114	141	124	105	138	119	97	132	114	91	122	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	128	141	141	122	141	130	109	141	119	94	133	108	82	123	95	73	115	84	61	102	76	84
			Exposed	141	141	135	141	141	126	141	140	119	141	132	112	141	125	101	141	119	92	136	113	85	124	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
			Exposed	147	147	147	147	147	144	147	147	134	147	141	126	147	133	120	147	126	114	147	120	104	136	105	88	125	90	76	117	79	63	107	70	86	96	58	77	87	81	65
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	141	122	144	124	114	133	116	100	123	107	89	115	96	81			
			Exposed	151	151	151	151	151	151	151	151	142	151	146	134	151	139	128	151	133	122	148	127	116	133	117	101	122	105	88	112	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	139	122	141	128	112	139	119	98	130	111	88	122	100	79	115	91	72	106	84	61
			Exposed	141	141	133	141	141	126	141	136	119	141	130	114	141	124	105	138	119	97	132	114	91	122	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	128	141	141	122	141	130	109	141	119	94	133	108	82	123	95	73	115	84	61	102	76	84
			Exposed	141	141	135	141	141	126	141	140	119	141	132	112	141	125	101	141	119	92	136	113	85	124	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147
			Exposed	147	147	147	147	147	144	147	147	134	147	141	126	147	133	120	147	126	114	147	120	104	136	105	88	125	90	76	117	79	63	107	70	86	96	58	77	87	81	65
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	141	122	144	124	114	133	116	100	123	107	89	115	96	81			
			Exposed	151	151	143	151	149	136	151	140	129	151	133	122	148	127	116	140	121	109	132	116	100	120	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	116	127	124	106	127	117	95	127	110	87
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	124	127	127	119	127	125	107	127	117	94	126	106	84	119	96	76	112	88	65	102	80	58
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	115	128	125	102	128	117	90	128	107	81
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	118	128	126	103	128	116	89	128	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	130	136	124	111	136	116	98			
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	134	121	136	123	109	136	113	94	131	98	82	123	87	73	116	78	62
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	139*	143*	140*	128	143*	131	120	143*	124	113
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	142*	143*	141*	129	143*	130	119	140*	121	108	128	113	95	119	102	85	110	92	77
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	112	127	127	112	127	127	112	127	127	100	127	115	91	127	106	84	61
			Exposed	127	127	127	127	127	126	127	127	119	127	127	114	127	124	105	127	119	97	127	114	91	122	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	109	128	128	109	128	128	109	128	128	100	128	115	84	61	102	76	84
			Exposed	128	128	128	128	128	126	128	128	119	128	128	112	128	125	101	128	119	92	128	113	85	124	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	125	136	136	125	136	136	117	136	136	99	135	104	87	126	92	77	119	82	65
			Exposed	136	136	136	136	136	136	136	136	134	136	136	126	136	133	120	136	126	114	136	120	104	136	105	88	125	90	76	117	79	63	107	70	86	96	58	77	87	81	65
		27-45	Interior	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	133	143*	134	122	143*	124	114	133	116	100	123	107	89	115	96	81
			Exposed	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	143*	134	143*	140*	128	143*	133	122	143*	127	116	133	117	101	122	105	88	112	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	127	111	127	118	96	127	108	85	119	97	76	112	88	65	101	80	57	92	73	78
			Exposed	127	127	122	127	127	115	127	125	107	127	119	98	127	114	91	127	107	84	122	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	122	128	128	116	128	128	107	128	118	91	128	104	79	120	91	68	110	80	58	96	72	80	86	61	72
			Exposed	128	128	121	128	128	114	128	126	103	128	119	93	128	113	85	128	103	78	123	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	130	138	137	124	138	125	112	138	114	95	132	99	83	123	87	73	116	78	61	106	68	85
			Exposed	138	138	137	138	138	128	138	134	121	138	126	114	138	120	104	138	114	94	134	104	86	124	88	74	115	76	60	102	63	82	92	86	73	83	77	61	75	65	54
		27-45	Interior	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	149*	143	149*	149*	138	149*	143	132	149*	132	121	141	122	110	129	114	96	119	102	85	109	91	77	96	83	66
			Exposed	149*	149*	143	149*	149*	136	149*	140	129	149*	133	122	149*	127	116	140	121	109	132	116	100	120	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65

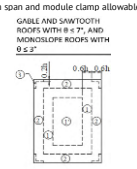
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

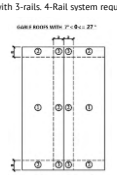
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

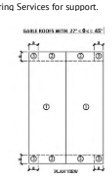
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

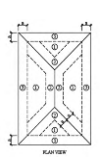












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

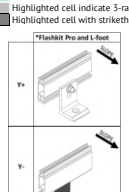
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	116	118	118	106	118	117	95	118	110	87
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	117	94	118	106	84	118	96	76	112	88	65	102	80	58
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	115	119	119	102	119	119	102	119	119	90	119	107	81
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	118	119	119	103	119	116	89	119	102	78	119	90	65	110	80	58	97	73	80
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	120*	128*	128*	120*	128*	124*	111*	128*	116*	98			
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	121*	128*	122*	109	128*	113*	84	128*	88	82	123*	87	72	116*	78	62
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	120*	124*	124*	113*			
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119*	124*	121*	108*	124*	113*	95	119*	102	85	110*	92	77
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	98	118	111	88	118	100	79	115	91	72	106	84	61
			Exposed	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	97	118	114	91	118	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61		
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	82	119	95	73	115	84	61	102	76	84
			Exposed	119	119	119	119	119	119	119	119	119	112	119	119	101	119	119	92	119	113	85	119	96	73	114	83	60	98	73	81	86	61	72	77	84	60	65	76	54		
		20-27	Interior	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	128*	125*	128*	127*	115*	128*	117*	99	128*	104	87	126*	92	77	119*	82	65
			Exposed	128*	128*	128*	128*	128*	128*	128*	128*	128*	126*	128*	128*	120*	128*	126*	114*	128*	120*	104	128*	105	88	125*	90	76	117*	79	63	107	70	86	96	58	77	87	81	65		
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122*	124*	124*	114*	124*	116*	100	123*	107*	89	115*	96	81
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122*	124*	124*	116*	124*	117*	101	122*	105*	88	112*	93	78	97	83	67	85	75	58	76	65	80
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	111	118	118	96	118	108	85	118	97	76	112	88	65	101	80	57	92	73	78
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	104	119	119	79	119	93	68	110	80	58	96	72	80	86	61	72
			Exposed	119	119	119	119	119	114	119	119	103	119	119	93	119	113	85	119	103	78	119	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	133*	130*	133*	133*	124*	133*	125*	112	133*	114	95	132*	99	83	123*	87	73	116	78	61	106	68	85
			Exposed	133*	133*	133*	133*	133*	128*	133*	133*	121*	133*	126*	114	133*	120	104	133*	114	94	133*	104	86	124*	88	74	115	76	60	102	63	82	92	86	73	83	77	61	75	65	54
		27-45	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	121*	129*	122*	110	129*	114*	96	119*	102	85	109	91	77	96	83	66
			Exposed	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	122*	129*	127*	116*	129*	121*	109	129*	116*	100	120*	103	86	107	90	75	92	80	63	81	72	85	72	61	76	60	82	65
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	106	115	115	95	115	110	87
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	96	115	115	96	115	115	96	112	88	65	102	80	58
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	115*	118*	118*	102	118*	117*	90	118*	107*	81
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	103	118*	116*	89	118*	102	78	118*	90	65	110*	80	58	97	73	80
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	111*	114*	114*	98*
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	113*	94*	114*	114*	98*	82	114*	87*	73	114*	78	62
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	95*	107*	92*	77
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	112	115	115	98	115	111	88	115	100	79	115	91	72	106	84	61
			Exposed	115	115	115	115	115	115	115	115	115	114	115	115	105	115	115	97	115	114	91	115	101	80	114	90	71	103	81	59	93	74	78	84	64	71	78	57	61		
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	109*	118*	118*	94	118*	108*	82	118*	95	73	115*	84	61	102	76	84
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	112*	118*	118*	101	118*	118*	92	118*	113*	85	118*	96	73	114*	83	60	98	73	81	86	61	72	77	84	60	65	76	54		
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	99*	114*	104*	87*	114*	92*	77	114*	82	65
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104*	114*	105*	88*	114*	90*	76	114*	79	63	107*	70	86	96*	58	77	87*	81	65
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	100*	107*	107*	89*	107*	96*	81
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	101*	107*	105*	88*	107*	93*	78	97*	83*	67	85*	75	58	76	65	80
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	96	118	108	85	118	97	76	112	88	65	101	80	57	92	73	78		
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	107	121*	118*	91	121*	104	79	120*	91	68	110	80	58	96	72	80	86	61	72
			Exposed	121*	121*	121*	121*	121*	114	121*	121*	103	121*	119*	93	121*	113	85	121*	103	78	121*	94	72	111	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	112*	119*	114*	95	119*	99*	83	119*	87	73	116*	78	61	106*	68	85
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	114*	119*	119*	104*	119*	114*	94	119*	104*	86	119*	104*	86	119*	104*	86	119*	109*	89	119*	102*	78	110*	90*	65	110*	80	58	97*	73	60
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	109*	115*	115*	100*	115*	115*	88	115*	88	74	115*	115*	96*	115*	102*	85	109*	92*	77	96*	83	66
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	109*	115*	115*	100*	115*	103*	86	107*	90*	75	92*	80	63	81	72	85	72	61	76	60	82	65
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	106	108	108	95	108	108	87
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	107	108	108	94	108	106	84	108	96	76	108	88	65	102	80	58		
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	102*	110*	110*	90*	110*	107*	81
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	103*	110*	110*	89*	110*	102*	78	110*	90*	65	110*	80	58	97*	73	80
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	82*	94*	87*	73*	94*	78*	62
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	85*	88*	88*	77*
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	106	108	108	95	108	108	87
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	98	108	108	91	108	101	80	108	90	71	103	81	59	93	74	78
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	109*	110*	110*	95*	110*	107*	84
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	101*	110*	110*	92*	110*	110*	85	110*	96*	73	110*	83	60	98*	73	81	86	61	72	77	84	60	65	76	54
		20-27	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	87*	94*	92*	77*	94*	82*	65
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	76*	94*	79*	63	94*	70	86	94*	58	77	87*	81	65
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	81*
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	83*	88*	88*	81*
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	111	112	112	96	112	108	85	112	97	76	112	88	65	101	80	57	92	73	78
			Exposed	112	112	112	112	112	112	112	112	107	112	112	98	112	112	91	112	107	84	112	100	79	112	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	107*	116*	116*	91	116*	104*	79	116*	91	68	110*	80	58	96*	72	80	86	61	72
			Exposed	116*	116*	116*	116*	116*	114*	116*	116*	103*	116*	116*	93	116*	113*	85	116*	103*	78	116*	94	72	111*	81	58	95	71	78	83	58	66	73	80	57	61	72	54	85	60	46
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	95*	103*	99*	83*	103*	87*	73	103*	78	61	103*	68	85
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	94*	103*	103*	86*	103*	103*	74	103*	76	60	102*	63	82	92*	86	73	83*	77	61	75	65	54
		27-45	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	86*	97*	90*	76*	92*	80*	63	81*	72	85	72	61	76	60	82	65

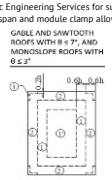
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

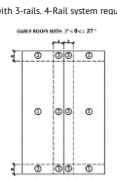
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

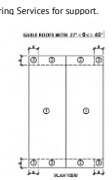
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

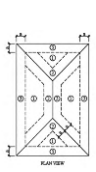












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

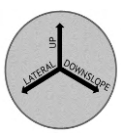
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

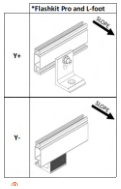
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	95	99	99	87			
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	84	99	96	76	99	88	65	99	80	58
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	81*			
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	89*	96*	96*	78*	96*	90*	65	96*	80*	58	96*	73	80
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	79*	72*	79*	79*	72*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	79*	72*	79*	79*	62*
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	88	99	99	79	99	91	72	99	84	61		
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	91	99	99	80	99	90	71	99	81	59	93	74	78	84	64	71	78	57	61
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	82*	96*	95*	73	96*	84*	61	96*	76*	84
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	85*	96*	96*	85	96*	73	96*	83*	60	96*	73	81	86*	61	72	77*	84	60	65	76	54
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	79*	79*	65*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	79*	81	65
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	67*	75*	75*	58*	75*	65*	80
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	85	104	97	76	104	88	65	101	80	57	92	73	78		
			Exposed	104	104	104	104	104	104	104	104	104	104	104	98	104	104	91	104	104	84	104	100	79	104	88	67	100	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	91*	106*	104*	79	106*	91*	68	105*	80	58	96*	72	80	86*	61	72
			Exposed	106*	106*	106*	106*	106*	106*	106*	106*	103*	106*	106*	93*	106*	106*	85*	106*	103*	78	106*	94*	72	106*	81*	58	95*	71	78	83*	58	66	73	80	57	61	72	54	85	60	45
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	73*	87*	78*	61	87*	68*	85		
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	86*	87*	87*	74*	87*	76*	60	87*	63	82	87*	86	73	83*	77	61	75*	65	54
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	77*	82*	82*	66*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	75*	82*	80*	63	81*	72*	85	72*	61	76	60	82	65
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	87			
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	87
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	81*			
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*	80		
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	62*
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	79	92	91	72	92	84	61		
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	91	92	92	80	92	90	71	92	81	59	92	74	78	84	64	71	78	57	61
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	82*	83*	83*	61	83*	76*	84		
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*	83*	83*	60	83*	73*	81	83*	61	72	77*	84	60	65*	76	54
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	65*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	63*	69*	69*	86*	69*	58*	77	69*	81*	65
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	96	97	97	76	97	88	65	97	80	57	92	73	78			
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	91	97	97	84	97	97	79	97	88	67	97	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	91*	92*	92*	79*	92*	91*	68	92*	80*	58	92*	72*	80	86*	61	72
			Exposed	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	92*	85*	92*	92*	78*	92*	92*	72*	92*	81*	58	92*	71*	78	83*	58	66	73*	80	57	61	72	54	85	60	45
		20-27	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	73*	76*	76*	61*	76*	68*	85	
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	74*	76*	76*	60*	76*	63*	82	76*	86	73	76*	77	61	75*	65	54
		27-45	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	66*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	63*	72*	72*	85*	72*	61*	76	60*	83*	65
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87			
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	87	87	87	76	87	87	65	87	80	58			
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*			
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	80		
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	79	87	87	72	87	84	61		
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	80	87	87	71	87	81	59	87	74	78	84	64	71	78	57	61
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	61*	74*	74*	84
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	60*	74*	73*	81	74*	61*	72	74*	84	60	65*	76	54
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	86*	61*	58*	77	61*	81*	65
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	80*
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85	91	91	76	91	88	65	91	80	57	91	73	78		
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	84	91	91	79	91	88	67	91	79	56	90	71	76	81	60	65	74	79	57	65	73	54
		7-20	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	79*	81*	81*	68*	81*	80*	58
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78	81*	81*	72	81*	81*	58	81*	71*	78	81*	58	66	73*	80	57	61	72	54	85	60	45
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	85*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	63*	82*	67*	86*	73	67*	77	61	67*	65	54
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	63*	64*	64*	85*	64*	61*	76*	60*	82*	65

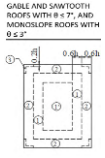
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

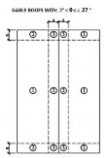
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

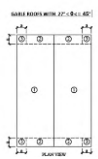
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

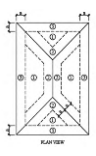












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

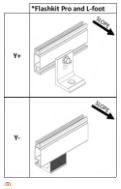
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	76	82	82	65	82	80	58		
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	65*	66*	66*	58*	66*	66*	80*		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*		
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	79	82	82	72	82	82	61		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	82	71	82	57	61		
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	61*	66*	66*	84*		
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	72	66*	84*	60	65*	76*	54		
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	82*	55*	55*	77*	55*	81*	65*		
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	78*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	78		
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	79	86	86	67	86	79	56	86	71	76	81	60	65	74	79	57	65	73	54		
		7-20	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	68*	73*	73*	58*	73*	72*	80	73*	61*	72			
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	72*	73*	73*	58*	73*	71*	78	73*	58*	66	73*	80	57	61*	72	54	85*	60	45		
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	85*		
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	82*	60*	86*	73*	60*	77*	61	60*	65	54		
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	85*	57*	57*	76*	57*	82*	65		
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	80*		
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	72	78	78	61		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	71	78	57	61		
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	84*		
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	81*	60*	60*	72*	60*	84*	60	60*	76*	54		
		20-27	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	74*	49*	49*	74*	49*	74*	65*		
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
		7-20	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*

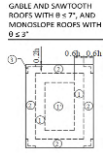
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

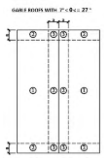
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

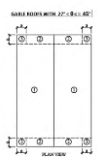
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

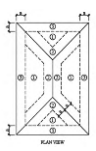












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

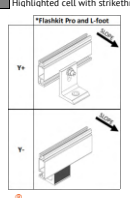
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	110	120*	120*	104	120*	113	93	120*	102	84	114	93	77	105	85	71	97	79	58	90	74	49			
			Exposed	120*	120*	116*	120*	120*	109	120*	119*	101	120*	114	95	120*	107	89	120*	101	84	116*	95	79	105	86	71	95	78	57	87	72	46	80	61	37	74	50	49	67	43	43
		7-20	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	115*	120*	120*	109*	120*	120*	102*	120*	112*	91	120*	100*	82	114*	90	74	103*	82	63	94	76	50	87	69	41
			Exposed	120*	120*	115*	120*	120*	107*	120*	119*	99*	120*	113*	92	120*	106*	86	120*	99*	81	116*	93	76	104*	83	65	93	75	49	84	64	38	77	50	49	71	41	43	57	34	38
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	105*	116*	107*	94*	116*	97*	85	116*	88	77	109*	81	71	101*	74	58			
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	107*	116*	113*	99*	116*	106*	93*	116*	98*	87	116*	98*	78	108*	80	70	98*	72	53	90*	59	42	83	47	35	77	38	46
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	103*	109*	106*	93*	109*	97*	85*	103*	89*	79	94*	83	73			
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	102*	109*	109*	96*	109*	98*	86*	101*	88*	78	92*	81	71	84*	74	57	77	65	46	71	54	38
	C	0-7	Interior	120*	120*	118*	120*	120*	113	120*	120*	105	120*	116*	98	120*	111	92	120*	105	87	119*	99	82	109	89	74	99	81	62	90	74	50	83	66	40	77	55	34	71	46	46
			Exposed	120*	111	92	120*	103	85	117*	96	80	111	90	75	104	85	70	98	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	120*	120*	118*	120*	120*	111*	120*	120*	103*	120*	116*	96*	120*	110*	89	120*	103*	84	119*	97*	79	108*	86	71	97*	78	54	88	71	42	80	56	34	73	45	46	64	37	41
			Exposed	120*	110*	89	120*	101*	83	117*	94	77	110*	87	72	103*	82	62	96*	77	53	90	73	45	80	57	35	73	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	104*	116*	110*	97*	116*	104*	91*	116*	92*	81	112*	83	73	101*	75	59	93*	65	46	86	52	37	79	42	49
			Exposed	116*	116*	103*	116*	116*	103*	116*	116*	105*	116*	111*	97*	116*	103*	91*	116*	97*	85	116*	91	80	110*	81	72	99*	73	55	90*	60	43	83	47	34	76	38	46	71	33	41
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	100*	109*	106*	94*	109*	106*	93*	109*	101*	89*	106*	92*	81	95*	84*	73	87*	77	62	79	71	50	73	59	41
			Exposed	109*	109*	109*	109*	109*	104*	109*	109*	97*	109*	103*	91*	109*	96*	85*	105*	91*	80	98*	86*	75	87*	77	64	78	70	49	71	55	38	56	45	33	45	37	44	36	49	39
	D	0-7	Interior	120*	120*	108	120*	118*	100	120*	112	93	120*	105	87	119*	99	82	114	93	77	108	88	73	97	80	59	88	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	118*	99	82	113	92	76	105	86	71	99	81	62	93	76	53	87	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	120*	120*	106*	120*	117*	98*	120*	111*	91	120*	103*	84	119*	97*	79	114*	91	74	107*	85	70	95	76	51	85	66	39	77	51	33	71	41	43	57	34	38	46	46	34
			Exposed	119*	96*	79	112*	89	73	104*	83	64	97*	77	53	90	73	45	85	65	38	80	55	34	71	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	105*	116*	111*	97*	116*	103*	91*	116*	97*	85	116*	91*	80	110*	81	72	99*	73	55	90*	60	43	83	47	34	76	38	46	71	33	41
			Exposed	116*	103*	91*	116*	95*	84	116*	88	78	111*	82	73	104*	77	64	98*	72	54	93*	65	46	83	48	35	75	36	45	67	47	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	100*	109*	106*	94*	109*	106*	94*	109*	100*	88*	103*	90*	79	93*	81	72	84*	74	57	77	65	46	70	53	37
			Exposed	109*	109*	99*	109*	105*	92*	109*	97*	86*	105*	91*	80	98*	86*	75	92*	81	71	86*	76	62	77	67	47	68	52	36	52	41	47	41	34	41	34	46	36	45	41	32
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	110	111	111	104	111	111	93	111	102	84	111	93	77	105	85	71	97	79	58	90	74	49
			Exposed	111	111	92	111	103	85	111	96	80	111	90	75	104	85	70	98	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	112*	102*	112*	112*	91	112*	100*	82	112*	90	74	103*	82	63	94	76	50	87	69	41
			Exposed	112*	112*	112*	112*	112*	107*	112*	112*	99*	112*	112*	92	112*	106*	86	112*	99*	81	112*	93	76	104*	83	65	93	75	49	84	64	38	77	50	49	71	41	43	57	34	38
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	105*	116*	107*	94*	116*	97*	85	116*	88	77	109*	81	71	101*	74	58
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	107*	116*	113*	99*	116*	106*	93*	116*	99*	87	116*	88	78	108*	80	70	98*	72	53	90*	59	42	83	47	35	77	38	46
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	102*	109*	109*	96*	109*	98*	86*	109*	98*	86*	101*	88*	78	92*	81	71	84*	74	57
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	96*	109*	98*	86*	101*	88*	78	92*	81	71	84*	74	57	77	65	46
	C	0-7	Interior	111	111	111	111	111	111	111	111	105	111	111	98	111	111	92	111	105	87	111	99	82	109	89	74	99	81	62	90	74	50	83	66	40	77	55	34	71	46	46
			Exposed	111	111	92	111	103	85	111	96	80	111	90	75	104	85	70	98	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	112*	112*	112*	112*	112*	111*	112*	112*	103*	112*	112*	96*	112*	110*	89	112*	103*	84	112*	97*	79	108*	86	71	97*	78	54	88	71	42	80	56	34	73	45	46	64	37	41
			Exposed	112*	110*	89	112*	101*	83	112*	94	77	110*	87	72	103*	82	62	96*	77	53	90	73	45	80	57	35	73	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	104*	116*	110*	97*	116*	104*	91*	116*	92*	81	112*	83	73	101*	75	59	93*	65	46	86	52	37	79	42	49
			Exposed	116*	116*	103*	116*	109*	95*	116*	100*	88	116*	93*	82	116*	87	77	111*	82	72	104*	77	64	93*	67	47	85	50	36	77	39	47	71	33	41	59	44	36	49	39	32
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	107*	109*	109*	100*	109*	106*	94*	109*	106*	94*	109*	100*	88*	103*	90*	79	93*	81	72	84*	74	57	77	65	46	70	53	37
			Exposed	109*	109*	99*	109*	105*	92*	109*	97*	86*	105*	91*	80	98*	86*	75	92*	81	71	86*	76	62	77	67	47	68	52	36	52	41	47	41	34	41	34	46	36	45	41	32
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	110	111	111	104	111	111	93	111	102	84	111	93	77	105	85	71	97	79	58	90	74	49
			Exposed	111	111	92	111	103	85	111	96	80	111	90	75	104	85	70	98	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	112*	102*	112*	112*	91	112*	100*	82	112*	90	74	103*	82	63	94	76	50	87	69	41
			Exposed	112*	112*	112*	112*	112*	107*	112*	112*	99*	112*	112*	92	112*	106*	86	112*	99*	81	112*	93	76	104*	83	65	93	75	49	84	64	38	77	50	49	71	41	43	57	34	38
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	105*	116*	107*	94*	116*	97*	85	116*	88	77	109*	81	71	101*	74	58
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	107*	116*	113*	99*	116*	106*	93*	116*	99*	87	116*	88	78	108*	80	70	98*	72	53	90*	59	42	83	47	35	77	38	46
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	103*	109*	106*	93*	109*	97*	85*	103*	89*	79	94*	83	73			
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	102*	109*	109*	96*	109*	98*	86*	101*	88*	78	92*	81	71	84*	74	57	77	65	46	71	54	38
20	C	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	87	96	96	82	96	89	74	96	81	62	90	74	50	83	66	40	77	55	34	71	46	46
			Exposed	96	96	92	96	96	85	96	96	80	96	90	75	96	85	70	96	80	61	93	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96*	103*	103*	89	103*	103*	84	103*	97*	79	103*	86	71	97*	78	54	88	71	42	80	56	34	73	45	46	64	37	41
			Exposed	103*	103*	89	103*	101*	83	103*	94	77	103*	87	72	103*	82	62	96*	77	53	90	73	45	80	57	35	73	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	91*	102*	102*	83*	102*	83*	73	101*	75	59	93*	65	46	86*	52	37
			Exposed	102*	102*	102*	102*	102*	95*	102*	100*	88*	102*	93*	82*	102*	87*	77	102*	82*	72	102*	77	64	93*	67	47	85*	50	36	77	39	47	71	33	41	59	44	36	49	39	32
		27-45	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	89*	93*	93*	92*	81*	93*	83*	87*	77*	62	79*	71*	50	73*	59	41
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	91*	93*	93*	85*	93*	91*	80*	93*	86*	75*	87*	77*	64	78*	70	49	71*	55	38	56	45	33	45	37	44	36	49	39
	D	0-7	Interior	96	96	96	96	96	96	96	96	93	96	96	87	96	96	82	96	93	77	96	88	73	96	80	59	88	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	96	96	82	96	92	76	96	86	71	96	81	62	93	76	53	87	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	106*	106*	106*	106*	106*	98*	106*	106*	91	106*	103*	84	106*	97*	79	106*	91	74	106*	85	70	95	76	51	85	66	39	77	51	33	71	41	43	57	34	38	46	46	34
			Exposed	106*	96*	79	106*	89	73	104*	83	64	97*	77	53	90	73	45	85	65	38	80	55	34	71	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	105*	108*	108*	97*	108*	103*	91*	108*	97*	85*	108*	91*	80	108*	81	72	99*	73	55	90*	60	43	83	47	34	76	38	46	71	33	41
			Exposed	108*	103*	91	108*	95*	84	108*	88	78	108*	82	73	104*	77	64	98*	72	54	93*	65	46	83	48	35	75	36	45	67	47	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	94*	100*	100*	88*	100*	90*	79*	93*	81*	72	84*	74	57	77*	65	46	70	53	37	56	44	49
			Exposed	100*	100*	99*	100*	100*	92*	100*	97*	86*	100*	91*	80*	98*	86*	75	92*	81*	71	86*	77*	62	77*	67	47	68	52	36	52	41	47	41	34	41	34	46	36	45	41	32

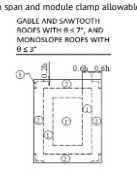
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

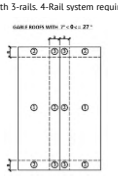
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

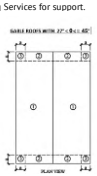
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

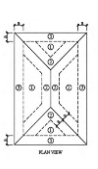












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

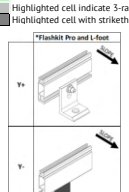
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	77	86	85	71	86	84	79	58	86	74	49
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	79	86	86	71	86	78	57	86	72	46	80	61	37	74	50	49	67	43	43
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	82*	87*	87*	74*	87*	82*	63	87*	76*	50	87*	69*	41
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	86*	87*	87*	81*	87*	87*	76*	87*	83*	65	87*	75*	49	84*	64	38	77*	50	49	71*	41	43	57	34	38
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	71*	73*	73*	58*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	70*	73*	72*	53	73*	59*	42	73*	47	35	73*	38	46
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57*	68*	65*	46	68*	54*	38
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	74	86	81	62	86	74	50	83	66	40	77	55	34	71	46	46
			Exposed	86	86	86	86	86	85	86	86	80	86	86	75	86	85	70	86	80	61	86	76	53	84	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	87*	87*	79*	87*	86*	71*	87*	78*	54	87*	71*	42	80*	56	34	73*	45	46	64	37	41
			Exposed	87*	87*	87*	87*	87*	83*	87*	87*	77*	87*	87*	72*	87*	82*	62	87*	77*	53	87*	73*	45	80*	57	35	73*	43	45	59	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	59*	73*	65*	46	73*	52	37	73*	42	49
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	64*	73*	67*	47	73*	50	36	73*	39	47	71*	33	41	59*	44	36	49	39	32
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62*	68*	68*	50	68*	59*	41	68*	54*	38
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	64*	68*	68*	49	68*	55*	38	56*	45	33	45	37	44	36	49	39
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	77	86	86	73	86	80	59	86	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	86	86	82	86	86	76	86	86	71	86	81	62	86	76	53	86	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25
		7-20	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	87*	87*	79*	87*	87*	74*	87*	87*	70	87*	85*	70	87*	76*	51	85*	66	39	77*	51	33	71	41	43	57	34	38
			Exposed	87*	87*	79*	87*	87*	73*	87*	83*	64	87*	77*	53	87*	73*	45	85*	65	38	80*	55	34	71	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	73*	55	80*	60	43	80*	47	34	76*	38	46	71*	33	41
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	78*	80*	80*	73*	80*	77*	64*	80*	72*	54	80*	65*	46	80*	48	35	75*	36	45	67*	47	39	54	41	34	44	36	30	37	32	27
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	58*	74*	65*	46	70*	53	37	56	44	49
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	71*	74*	74*	62*	74*	67*	47	68*	52	36	52	41	47	41	34	41	34	46	36	45	41	32	44	32	22
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	79	83	83	71	83	79	58	83	74	49
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	71	83	83	79	83	72	46	80	61	37	74	50	49	67	43	43
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	63*	70*	70*	50	70*	69*	41
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	70*	64*	38	70*	50	49	70*	34	38
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	42	57*	47*	35	57*	38	46
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	46*	54*	54*	38
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	74	83	81	62	83	74	50	83	66	40	77	55	34	71	46	46
			Exposed	83	83	83	83	83	83	83	83	80	83	83	75	83	83	70	83	80	61	83	76	53	83	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	56*	34	70*	45	46	64	37	41
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	53	70*	70*	45	70*	57*	35	70*	43	45	59*	35	39	46	46	34	37	40	30	49	36	27
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	46*	57*	52*	37	57*	42	49
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	47*	57*	50*	36	57*	39	47	57*	33	41	57*	44	36	49*	39	32
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	50*	54*	54*	41
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	49*	54*	54*	38	54*	45*	33	45*	37	44	36	49	39
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	77	85	85	73	85	80	59	85	72	47	81	61	38	74	50	49	67	42	43	56	36	38
			Exposed	85	85	82	85	85	76	85	85	71	85	81	62	85	76	53	85	72	46	83	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	74*	77*	77*	70*	77*	76*	51	77*	66*	39	77*	51	33	71*	41	43	57	34	38	46	46	34
			Exposed	77*	77*	77*	77*	77*	73*	77*	77*	64*	77*	77*	53	77*	73*	45	77*	65*	38	77*	55	34	71*	41	44	55	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	55*	63*	60*	43	63*	47	34	63*	38	46	63*	33	41
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	48	35	63*	36	45	63*	47	39	54*	41	34	44	36	30	37	32	27
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	59*	46*	59*	53*	37	56*	44	49
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	47*	59*	52*	36	52*	41	47	41	34	41	34	46	36	45	41	32
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	58	77	74	49
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	57	77	72	46	77	61	37	74	50	49	67	43	43
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	50*	57*	57*	41
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	49*	57*	41	43	57*	34	38
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	35	47*	38*	46
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	77	77	74	50	77	66	40	77	55	34	71	46	46
			Exposed	77	77	77	77	77	77	77	77	77	77	77	75	77	77	70	77	77	61	77	76	53	77	67	41	76	53	34	69	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	42	57*	57*	56*	34	57*	45*	46	57*	37	41
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	53*	57*	57*	45*	57*	57*	35	57*	43	45	57*	35	39	46*	46	34	37	40	30	49	36	27
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	36	47*	39*	47*	47*	33	41	47*	44	36	47*	39	29
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*	44*	44*	41*
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	77	80	80	73	80	80	59	80	72	47	80	61	38	74	50	49	67	42	43	56	36	38
			Exposed	80	80	80	80	80	76	80	80	71	80	80	62	80	76	53	80	72	46	80	65	40	75	51	49	65	41	42	53	34	37	43	45	32	36	40	28	48	35	25
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	51*	63*	63*	39	63*	51*	33	63*	41	43	57*	34	38	46	46	34
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	53*	63*	63*	53*	63*	63*	45	63*	63*	38	63*	55*	34	63*	41	44	55*	33	37	43	44	32	35	38	28	46	34	25	41	30	22
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	43*	52*	47*	34	52*	38	46	52*	33	41
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	46*	52*	48*	35	52*	47	39	52*	47	33	52*	41	34	44*	36	30	37	32	27
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	46*	49*	49*	37	49*	44*	49
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	36	49*	41*	47	41*	34	41	34	46	36	45	41	32

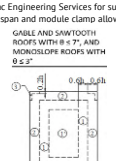
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

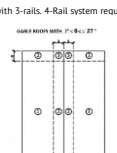
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

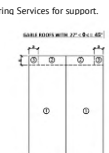
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

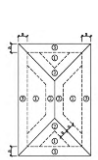












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

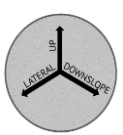
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

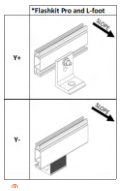
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	70	49	70	70	49
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	57	70	70	46	70	61	37	70	50	49	67	43	43
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	38*	48*	48*	49	48*	41*	43	48*	34	38
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	46*
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	62	70	70	50	70	66	40	70	55	34	70	46	46
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	53	70	67	41	70	53	34	69	43	44	56	36	38
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	34	48*	45*	46	48*	37	41
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	35	48*	48*	39	46*	46	34	37	40	36	27
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*	40*	40*	49*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	47*	40*	33*	41	40*	44	36	40*	39	32
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	37*	44	36*	40*	38
	D	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	59	74	72	47	74	61	38	74	50	49	67	42	43	56	36	38
			Exposed	74	74	74	74	74	74	74	74	71	74	74	62	74	74	53	74	72	46	74	65	40	74	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	51*	33	53*	41*	43	53*	34	38	46*	46	34	44*	36	41
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	45*	53*	53*	38	53*	53*	34	53*	41*	44	53*	33	37	43*	44	32	35	38	26	46	34	25	41	30	22
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	43*	44*	44*	34*	44*	44*	34*	44*	38*	46	44*	33	41
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	35*	44*	36*	45	44*	47	39	44*	41	34	44*	36	30	37*	32	27
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	49*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36*	41*	41*	47	41*	34*	41	34*	46	36	45	41	32
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	65	49	65	65	49
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	46	65	61	37
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	42*	49*	42*	41*	43	42*	34*
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	46*
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	50	65	65	40	65	55	34	65	46	46
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	65	53	65	65	41	65	53	34	65	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35*	42*	42*	45	42*	35*	39	42*	46	34	37*	40	30	49*	36	27
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	49*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	47*	35*	33*	41*	35*	44*	36	35*	39	32
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	44*	39*
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	59	69	69	47	69	61	38	69	50	49	67	42	43	56	36	38
			Exposed	69	69	69	69	69	69	69	69	62	69	69	53	69	69	46	69	65	40	69	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25	48	35	25
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	39*	46*	46*	33	46*	41*	43	46*	34	38	46*	46	34
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	45*	46*	46*	38	46*	46*	34	46*	41*	44	46*	33	37	43*	44	32	35	38	26	46	34	25	41	30	22
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	38*	46*	38*	33*	41	38*	33*	41
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	45*	38*	47*	39	38*	41	34	38*	36	30	37*	32	27
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	49*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	47*	36*	34*	41	34*	46*	36	45*	41	32
80	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	49
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	46	61	61	37	61	50	49	61	43	43
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	49*	37*	37*	43*	37*	34*	38
		20-27	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	46*
		27-45	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	50	61	61	40	61	55	34	61	46	46
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	53	61	61	41	61	53	34	61	43	44	56	36	38	47	48	34
		7-20	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	46*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*	37*	37*	45*	37*	35*	39	37*	46*	34	37*	40	30	49*	36	27
		20-27	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	46*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	46*	30*	30*	41*	30*	44*	36*	30*	39*	32
		27-45	Interior	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*
			Exposed	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	29*	44*	39*
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	47	65	61	38	65	50	49	65	42	43	56	36	38
			Exposed	65	65	65	65	65	65	65	65	62	65	65	53	65	65	46	65	65	40	65	51	49	65	41	42	53	34	37	43	45	32	36	40	26	48	35	25	48	35	25
		7-20	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	33*	41*	41*	43	41*	34*	38	41*	46	34
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	44	41*	44	32	35*	38	26	46	34	25	41	30	22	41*	30	22
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	46*	34*	33*	41*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	45*	34*	47*	39*	34*	41*	34	34*	36	30	41*	32	27
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	48*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	47*	32*	32*	41*	32*	46*	36	45*	41*	32

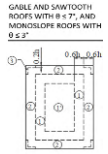
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

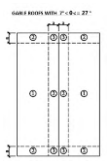
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

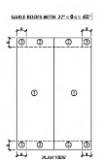
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

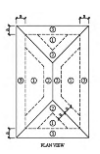












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

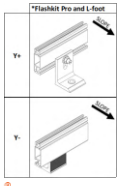
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	49
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	46	58	58	37	58	50	49	58	43	43
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	49*	33*	33*	43*	33*	33*	38
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	58	40	58	55	34	58	46	46
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	41	58	53	34	58	43	44	56	36	38	47	48	34	40	42	30
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	46*	33*	33*	41*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	45*	33*	33*	39*	33*	46*	34	33*	40*	30	49*	36	27
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	36*	41*	39*	32*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	47	61	61	38	61	50	49	61	42	43	56	36	38
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	53	61	61	46	61	61	40	61	51	49	61	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	43*	36*	36*	38	36*	46*	34
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	44*	36*	33*	37	36*	44*	32	35*	38	26	46*	34	25	41	30	22
		20-27	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	41*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	45*	39*	30*	41*	34	30*	36*	30	30*	32	27
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36*	43*	41*	32
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	49
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	46	55	55	55	55	55	49	55	43	43
		7-20	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	43*	30*	30*	38*
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	40	55	55	34	55	46	46
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	41	55	53	34	55	43	44	55	36	38	47	48	34	40	42	30
		7-20	Interior	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	41*
			Exposed	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	30*	45*	30*	30*	39*	30*	45*	34	30*	40*	30	45*	36*	27
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	36*	37*	37*	32*
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	47	58	58	38	58	50	49	58	42	43	56	36	38
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	46	58	58	40	58	51	49	58	41	42	53	34	37	43	45	32	36	40	26	48	35	25
		7-20	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	43*	33*	33*	38	33*	46*	34
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	44*	33*	33*	37	33*	44*	32	33*	38	26	46*	34	25	41*	30	22
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34*	41*	36*	30	41*	32*	27
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	39*	32*

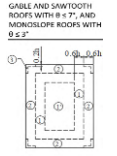
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

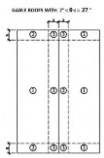
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

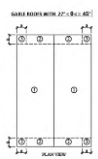
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

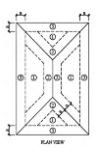












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

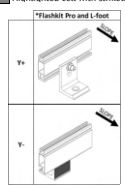
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	145	149	149	133	149	141	123	149	131	115	144	123	104	135	116	94	128	108	85
			Exposed	149	149	149	149	149	149	149	149	142	149	149	135	149	146	128	149	140	123	149	134	117	145	124	105	134	115	92	125	105	82	118	95	74	110	86	64	100	79	84
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	135	149	146	123	149	134	114	149	124	100	140	116	88	130	105	79
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	129	149	145	122	149	137	117	149	125	101	138	115	87	127	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	143	128	150	132	119	150	122	108	142	115	96
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	150	139	150	147	132	150	132	120	150	121	106	139	111	92	130	96	81	122	85	72	115	77	60
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	149	136	151	138	127	151	130	119	141	122	110
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	140	151	139	127	151	129	118	137	120	106	127	111	93	118	100	84	108	90	76
	C	0-7	Interior	149	149	149	149	149	149	149	149	146	149	149	139	149	149	132	149	144	126	149	137	121	149	127	110	138	118	97	129	109	86	121	99	78	114	90	71	104	82	60
			Exposed	149	149	132	149	142	124	149	135	118	149	128	112	143	123	103	137	118	96	131	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	133	149	149	126	149	142	120	149	128	107	143	118	92	131	106	80	121	93	71	113	83	60	100	75	83
			Exposed	149	149	133	149	147	125	149	138	117	149	130	109	149	123	99	142	117	90	134	111	83	122	94	72	111	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	144	150	150	136	150	137	123	150	125	113	143	115	97	133	102	85	125	90	76	118	80	64
			Exposed	150	150	150	150	150	142	150	148	133	150	139	125	150	131	118	150	124	111	146	118	101	134	103	86	124	88	74	116	77	61	105	65	84	94	57	75	85	80	63
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	143	131	151	132	121	142	123	112	131	115	98	122	105	88	114	95	79
			Exposed	151	151	151	151	151	150	151	151	141	151	145	133	151	138	126	151	131	120	146	126	115	132	116	99	120	103	86	109	91	76	95	82	64	84	74	87	75	63	79
	D	0-7	Interior	149	149	149	149	149	141	149	149	133	149	144	126	149	137	121	149	131	115	148	126	109	136	117	94	126	106	84	118	95	75	110	86	64	99	79	84	91	72	77
			Exposed	149	137	120	149	130	114	144	124	105	137	118	96	131	113	89	125	105	83	120	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	149	149	149	149	149	144	149	149	135	149	149	127	149	142	120	149	134	114	149	127	105	141	116	89	128	102	78	118	89	64	107	79	87	94	71	78	84	59	71
			Exposed	149	141	120	149	132	112	149	124	101	143	118	91	134	111	83	127	101	77	121	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	145	150	150	136	150	143	129	150	136	122	150	123	110	140	113	93	130	97	81	122	85	72	115	76	60	104	64	84
			Exposed	150	150	136	150	141	127	150	132	119	150	125	112	146	118	101	139	111	92	133	101	85	122	86	73	114	75	59	101	62	81	90	84	72	81	75	60	74	64	53
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	149	137	151	142	130	151	130	119	139	121	108	127	112	94	118	100	84	107	90	75	94	82	64
			Exposed	151	151	144	151	147	135	151	139	127	151	132	121	146	126	115	138	120	106	131	115	98	119	101	84	105	88	74	90	79	61	79	71	83	71	60	75	59	81	64
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	133	139	139	123	139	131	115	139	123	104	135	116	94	128	108	85
			Exposed	139	139	139	139	139	139	139	139	139	139	139	135	139	139	128	139	139	123	139	139	134	139	134	117	139	134	115	125	105	82	118	95	74	110	86	64	100	79	84
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	135	140	140	123	140	134	114	140	124	100	140	116	88	130	105	79
			Exposed	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	72	115	77	60
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	76
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	78	114	90	71	104	82	60
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	133	140	140	126	140	140	120	140	128	107	140	118	92	131	106	80	121	93	71	113	83	60	100	75	83
			Exposed	140	140	133	140	140	125	140	138	117	140	130	109	140	123	99	140	117	90	134	111	83	122	94	72	111	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	144	146	146	136	146	137	123	146	125	113	143	115	97	133	102	85	125	90	76	118	80	64
			Exposed	146	146	146	146	146	142	146	146	133	146	139	125	146	131	118	146	124	111	146	118	101	134	103	86	124	88	74	116	77	61	105	65	84	94	57	75	85	80	63
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	76
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	78	114	90	71	104	82	60
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	135	140	140	123	140	134	114	140	124	100	140	116	88	130	105	79
			Exposed	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	72	115	77	60
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	76
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	115	126	123	104	126	116	94	126	108	85	126	108	85
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	117	126	124	105	126	115	92	125	105	82	118	95	74	110	86	64	100	79	84
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	114	127	124	100	127	116	88	127	105	79	127	105	79
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	125	101	127	115	87	127	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	128	135	132	119	135	122	108	135	115	96
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	132	135	132	120	135	121	106	135	111	92	130	96	81	122	85	72	115	77	60
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	137*	142*	139*	127	142*	130	119	141*	122	110
			Exposed	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	140*	142*	139*	127	142*	129	118	138*	120	106	127	111	93	118	100	84	108	90	76
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	110	126	109	86	121	99	78	114	90	71	104	82	60	104	82	60
			Exposed	126	126	126	126	126	124	126	126	118	126	126	112	126	123	103	126	118	96	126	113	89	121	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	107	127	118	92	127	106	80	121	93	71	113	83	60	100	75	83
			Exposed	127	127	127	127	127	127	127	127	117	127	127	109	127	123	99	127	117	90	127	111	83	122	94	72	111	82	58	96	72	80	85	60	71	75	82	59	64	74	53
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	123	135	125	113	135	115	97	133	102	85	125	90	76	118	80	64
			Exposed	135	135	135	135	135	133	135	135	125	135	135	125	135	131	118	135	124	111	135	118	101	134	103	86	124	88	74	116	77	61	105	65	84	94	57	75	85	80	63
		27-45	Interior	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	142*	131	142*	132	121	142*	123	112	131	115	98	122	105	88	114	95	79
			Exposed	142*	142*	142*	142*	142*	141*	142*	142*	142*	142*	142*	133	142*	138*	126	142*	131	120	142*	126	115	132	116	99	120	103	86	109	91	76	95	82	64	84	74	87	75	63	79
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	115	126	126	109	126	117	94	126	106	84	118	95	75	110	86	64	99	79	84	91	72	77
			Exposed	126	126	120	126	126	114	126	124	105	126	118	96	126	113	89	125	105	83	120	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	114	127	127	105	127	116	89	127	102	78	118	89	64	107	79	87	94	71	78	84	59	71
			Exposed	127	127	120	127	127	112	127	124	101	127	118	91	127	111	83	127	101	77	121	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	136	137	137	129	137	136	122	137	123	110	137	113	93	130	97	81	122	85	72	115	76	60	104	64	84
			Exposed	137	137	136	137	137	127	137	132	119	137	125	112	137	118	101	137	111	92	133	101	85	122	86	73	114	75	59	101	62	81	90	84	72	81	75	60	74	64	53
		27-45	Interior	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	146*	142	146*	146*	137	146*	142	130	146*	130	119	139	121	108	127	112	94	118	100	84	107	90	75	94	82	64
			Exposed	146*	146*	142	146*	146*	135	146*	139	127	146*	132	121	146*	126	115	138	120	106	131	115	98	119	101	84	105	88	74	90	79	61	79	71	83	71	60	75	59	81	64

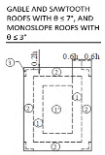
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

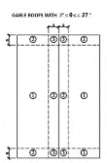
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

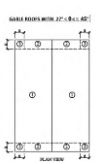
50 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

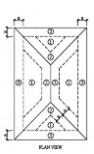












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

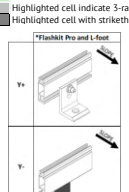
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	104	117	116	94	117	108	85
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	105	117	115	92	117	105	82	117	95	74	110	86	64	100	79	84
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	114	118	118	100	118	116	88	118	105	79
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	101	118	115	87	118	100	76	118	88	64	107	79	87	95	71	79
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	119*	127*	122*	108	127*	115*	96
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	120*	127*	121*	106	127*	111*	92	127*	96	81	122*	85	72	115*	97	80
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	119*	122*	122*	110*	122*	122*	110*
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	118*	122*	120*	106*	122*	111*	93	118*	100	84	108*	90	76
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	86	117	99	78	114	90	71	104	82	60
			Exposed	117	117	117	117	117	117	117	117	117	112	117	117	103	117	117	96	117	113	89	117	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	80	118	93	71	113	83	60	100	75	83
			Exposed	118	118	118	118	118	118	118	118	117	109	118	118	99	118	117	90	118	111	83	118	94	72	111	82	58	96	72	80	85	60	71	75	52	96	72	80	89	64	74
		20-27	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	123*	127*	125*	113*	127*	115*	97	127*	102	85	125*	90	76	118*	80	64
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	125*	127*	127*	118*	127*	124*	111*	127*	118*	101	127*	103	86	124*	88	74	116*	77	61	105	65	84	94	57	75	85	80	63	85	80	63
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	112*	122*	115*	98	122*	105*	88	114*	95	79
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	120*	122*	122*	115*	122*	116*	99	120*	103*	86	108*	91	76	95	82	64	84	74	87	75	63	79
40	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	106	84	117	95	75	110	86	64	99	79	84	91	72	77
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	105	118	116	89	118	102	78	118	89	64	107	79	87
			Exposed	118	118	118	118	118	112	118	118	101	118	118	91	118	111	83	118	101	77	118	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	129*	123*	110	129*	113	93	129*	97	81	122*	85	72	115	76	60	104	64	84
			Exposed	129*	129*	129*	129*	129*	127*	129*	129*	119*	129*	125*	112	129*	118	101	129*	111	92	129*	101	85	122*	86	73	114	75	59	101	62	81	90	84	72	81	75	60	74	64	53
		27-45	Interior	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	119*	127*	121*	108	127*	112*	94	118*	100	84	107	90	75	94	82	64
			Exposed	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	127*	121*	127*	126*	115*	127*	120*	106	127*	115*	98	119*	101	84	105	88	74	90	79	61	79	71	83	71	60	75	59	81	64
	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	104	115	115	94	115	108	85
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	114*	118*	118*	100	118*	116*	88	118*	105*	79
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	101	118*	118*	97	118*	100	76	118*	88	64	107*	79	87	95	71	79
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	108*	111*	111*	96*	111*	111*	96*
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	106*	111*	111*	92*	111*	111*	96*	81	111*	85*	72	111*	77	60
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	93*	104*	100*	84*	104*	90*	76
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	97	115	109	86	115	99	78	114	90	71	104	82	60
			Exposed	115	115	115	115	115	115	115	115	115	112	115	115	103	115	115	96	115	113	89	115	99	78	113	89	68	101	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	107*	118*	118*	92	118*	106*	80	118*	93	71	113*	83	60	100	75	83
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	117*	118*	118*	109*	118*	118*	99	118*	117*	90	118*	111*	83	118*	94	72	111*	82	58	96	72	80	85	60	71	75	82	59	64	74	59
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	97*	111*	102*	85*	111*	90*	76	111*	80	64	111*	80	64
			Exposed	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	111*	101*	111*	103*	86*	111*	88*	74	111*	77	61	105*	65	84	94*	57	75
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	98*	104*	104*	88*	104*	95*	79
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	99*	104*	103*	86*	104*	91*	76	95*	82*	64	84*	74	87
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	94	117	109	86	117	95	75	110	86	64	99	79	84
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	116*	89	120*	102	78	118*	89	64	107	79	87	94	71	78	84	59
			Exposed	120*	120*	120*	120*	120*	112	120*	120*	101	120*	118*	91	120*	111	83	120*	101	77	120*	93	71	108	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	110*	118*	113*	93	118*	97*	81	118*	85	72	115*	76	60	104*	64	84
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	112*	118*	118*	101*	118*	111*	92	118*	101*	85	118*	86	73	114*	75	59	101*	62	81	90	84	72	81	75	60	74	64	59
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	108*	114*	112*	94*	114*	100*	84	107*	90*	75	94*	82	64
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	106*	114*	114*	98*	114*	101*	84	105*	89*	74	90*	79	61	79	71	83	71	60	75	59	81	64
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	107	107	94	107	107	85			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	105	107	107	92	107	105	82	107	95	74	107	86	64	100	79	84
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	100*	108*	108*	88*	108*	105*	79			
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	101*	108*	108*	87*	108*	108*	100*	76	108*	88*	64	107*	79	87	95*	71	79
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*			
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	81*	91*	85*	72*	91*	77*	60
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*			
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	84*	86*	86*	76*
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	107	107	94	107	107	85			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	103	107	107	96	107	107	89	107	99	78	107	89	68	101	80	85	91	73	77	83	62	70	76	82	59		
		7-20	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	93*	71	107*	83	60	100*	75	83		
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	99*	108*	108*	90*	108*	108*	83	108*	94*	72	108*	82	58	96*	72	80	85*	60	71	75	82	59	64	74	59		
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	85*	91*	90*	76*	91*	80*	64		
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	86*	91*	88*	74*	91*	77*	61	91*	65	84	91*	57	75	85*	60	63
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	79*			
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	82*	64	84*	74*	87	75*	63	79
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	109	111	111	94	111	106	84	111	95	75	110	86	64	99	79	84
			Exposed	111	111	111	111	111	111	111	111	105	111	111	96	111	111	89	111	105	83	111	98	77	111	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	50
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	105*	115*	115*	89	115*	102*	78	115*	89	64	107*	79	87	94*	71	78	84	59
			Exposed	115*	115*	115*	115*	115*	112*	115*	115*	101*	115*	115*	91	115*	111*	83	115*	101*	77	115*	93	71	108*	80	88	93	67	77	81	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	93*	100*	97*	81*	100*	85*	72	100*	76	60	100*	64	84
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	92*	100*	100*	85*	100*	86*	73	100*	75	59	100*	62	81	90*	84	72	81*	75	60	74	64	53
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	84*	94*	88*	74*	90*	79*	61	79*	71	83	71	60	75	59	81	64

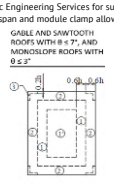
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

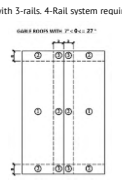
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

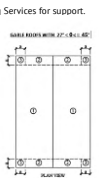
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

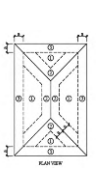












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

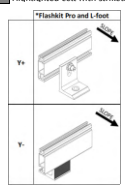
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	94	98	98	85			
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	92	98	98	82	98	95	74	98	86	64	98	79	84
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	88*	94*	94*	79*			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	87*	94*	94*	76*	94*	88*	64	94*	79*	87	94*	71	79
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*			
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	72*	78*	78*	72*	78*	77*	60*
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*			
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	86	98	98	78	98	90	71	98	82	60
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	96	98	98	89	98	98	80	98	80	85	91	73	77	83	62	70	76	82	59			
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	80*	94*	93*	71	94*	83*	60	94*	75*	83
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	94*	94*	83*	94*	94*	72*	94*	82*	58	94*	72*	80	85*	60	71	75*	82	59	64	74	58
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	76*	78*	78*	64*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	74*	78*	77*	61*	78*	78*	65*	84	78*	57	75	78*	80	63		
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	64*	73*	73*	87	73*	63*	79
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	94	103	103	84	103	95	75	103	86	64	99	79	84	91	72	77
			Exposed	103	103	103	103	103	103	103	103	103	103	103	96	103	103	89	103	103	83	103	98	77	103	87	64	98	78	83	88	70	74	80	85	63	73	78	56	63	72	59
		7-20	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	89*	104*	104*	89*	104*	102*	78	104*	89*	64	104*	79	87	94*	71	78
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	101*	104*	104*	91*	104*	104*	83*	104*	101*	77	104*	93*	71	104*	80*	88	93*	67	77	81*	88	64	72	78	56	60	70	49	83	59	44
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	72*	85*	76*	60	85*	64	84
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	73*	85*	75*	59	85*	62	81	85*	84	72	81*	75	60	74*	64	53
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	75*	81*	81*	64*
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	74*	81*	79*	62*	79*	71*	83	71*	60	75	59	81	64
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	78	91	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	79*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	76*	82*	82*	64*	82*	79*	87	82*	71*	79
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	86	91	91	78	91	90	71	91	82	60
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	78	91	89	68	91	80	85	91	73	77	83	62	70	76	82	59
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	80*	82*	82*	71*	82*	82*	60	82*	75*	83
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	72*	82*	82*	58	82*	72*	80	82*	60	71	75*	82	59	64*	74	59
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	64*
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	65*	84*	67*	57*	75	67*	80*	63
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	84	96	95	75	96	86	64	96	79	84	96	72	77
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	96	83	96	96	77	96	87	64	96	78	83	88	70	74	80	85	63	73	78	56	63	72	56
		7-20	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	89*	90*	90*	89*	90*	90*	64	90*	89*	64	90*	78*	87	90*	71*	78
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	88	90*	90*	67	77	81*	88	64	72*	78	56	60	70	49	83	59	44
		20-27	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	72*	74*	74*	60*	74*	64*	84
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	73*	74*	74*	59*	74*	62*	81	74*	84	72	74*	74*	75	60	74*	64	59
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	83*	70*	60*	75	59*	81*	64
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	74	86	86	64	86	79	84
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	87	72*	71*	79
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	78	86	86	71	86	82	60
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	78	86	86	68	86	80	85	86	73	77	83	62	70	76	82	59
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	71*	72*	72*	60*	72*	72*	83*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	58*	72*	72*	80	72*	60*	71	72*	82	59	64*	74	58
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	84*	60*	57*	75*	60*	80*	63
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	85*	57*	57*	79*
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	84	90	90	75	90	86	64	90	79	84			
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	90	90	90	90	90	87	64	90	78	83	88	70	74	80	85	63	73	78	56	63	72	56
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	78*	79*	79*	64*	79*	79*	87	79*	71*	78	79*	59	71
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	77*	79*	79*	71*	79*	79*	88	79*	67*	77	79*	88	64	72*	78	56	60	70	49	83	59	44
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	60*	66*	64*	84*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	84*	72	66*	75	60	66*	64	53
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	62*	62*	83*	62*	60*	75*	59*	81*	64

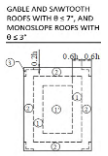
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

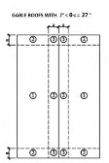
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

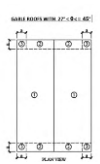
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

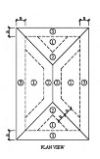












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	L-Foot
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

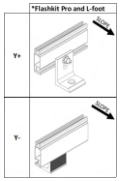
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	74	81	81	64	81	79	84		
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	87*	64*	64*	79*		
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	81	81	71	81	81	60		
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	68	81	80	85	81	73	77
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	58*	64*	64*	80*	64*	60*	71
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	75	85	85	64	85	79	84	85	72	77
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	83	85	85	77	85	85	64	85	78	83	85	70	74	80	85	63	73	78	56	63	72	59		
		7-20	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	64*	71*	71*	87*	71*	71*	78	71*	59*	71
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	88*	71*	67*	77	71*	88*	64	71*	78	56	60*	70	49	83*	59	44
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	84*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	81*	59*	84*	72*	59*	75*	60	59*	64	53
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	83*	84*	84*	75*	84*	81*	64*
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	84		
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	87*	58*	58*	79*		
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	60		
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	68	77	77	85	77	73	77
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	80*	58*	58*	71*	58*	82*	59	58*	74*	59
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	63*
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	75	81	81	64	81	79	84	81	72	77
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77	81	81	64	81	78	83	81	70	74	80	85	63	73	78	56	63	72	56	
		7-20	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	87*	64*	64*	78*	64*	59*	71
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	88*	64*	64*	77*	64*	88*	64	64*	78*	56	60*	70	49	83*	59	44
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	75*	60	80*	64*	53
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	75*	76*	76*	64*

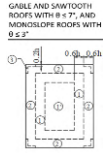
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

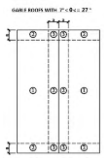
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

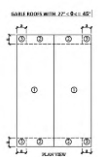
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

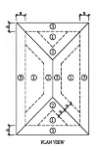












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

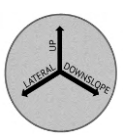
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

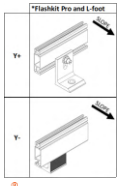
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	120	127	127	114	127	121	100	127	122	100	82	115	92	70	105	85	57	96	78	48
			Exposed	127	127	125	127	127	118	127	127	111	127	122	101	127	117	95	127	111	90	125	103	85	115	92	71	103	84	56	94	73	45	86	60	39	80	50	34	67	42	30
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	119	127	127	113	127	121	96	127	109	87	123	96	77	114	88	60	100	81	48	92	66	41
			Exposed	127	127	125	127	127	117	127	127	108	127	123	98	127	116	91	127	108	86	127	99	81	115	88	61	99	79	47	90	61	39	82	48	34	67	40	30	54	36	40
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	116	128	117	99	128	103	90	127	93	82	119	86	68	110	77	55
			Exposed	128	128	128	128	128	128	128	128	125	128	128	117	128	123	108	128	117	99	128	109	93	127	94	83	117	85	66	106	71	51	96	56	41	88	45	36	82	39	32
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	124	129	125	114	129	116	99	122	105	91	114	95	84	100	88	74
			Exposed	129	129	129	129	129	129	129	129	129	129	129	125	129	129	119	129	124	113	129	119	103	123	106	92	112	94	83	97	86	68	88	78	54	81	63	44	66	53	39
	C	0-7	Interior	127	127	127	127	127	121	127	127	115	127	126	106	127	120	98	127	115	93	127	108	88	118	96	77	108	87	61	97	79	49	89	65	41	83	54	36	72	46	32
			Exposed	127	120	98	127	113	91	126	104	85	120	97	80	114	91	69	107	86	59	99	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	127	127	127	127	127	121	127	127	114	127	127	102	127	120	95	127	114	89	127	104	84	119	92	67	104	83	51	93	67	41	85	53	36	75	43	32	60	38	43
			Exposed	127	120	95	127	111	88	127	100	82	120	93	70	114	87	59	103	82	50	96	72	43	86	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	121	128	127	114	128	120	104	128	114	96	128	97	86	121	88	73	112	79	56	99	61	44	91	49	38	85	41	34
			Exposed	128	127	114	128	119	101	128	110	94	128	99	87	126	93	82	120	87	71	115	82	60	100	63	45	90	48	38	83	39	33	70	34	43	57	30	38	48	41	34
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	122	129	128	116	129	122	109	127	111	95	116	98	86	101	89	75	92	82	60	84	69	48	74	57	41			
			Exposed	129	129	122	129	126	115	129	119	105	129	113	96	122	104	90	115	97	85	106	92	80	92	82	61	83	67	47	68	54	39	53	44	34	42	38	30	38	34	41
	D	0-7	Interior	127	127	117	127	127	109	127	121	99	127	115	93	127	108	88	123	100	83	118	95	75	105	85	58	95	75	46	87	61	39	79	50	34	66	42	30	55	37	40
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		7-20	Interior	127	127	116	127	127	105	127	121	96	127	114	90	127	104	84	124	96	77	118	91	66	101	81	49	91	63	40	82	49	34	67	40	30	54	36	40	44	32	36
			Exposed	127	103	84	122	95	74	115	88	61	104	82	51	96	72	43	90	61	39	85	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	128	128	128	128	128	123	128	128	116	128	121	105	128	114	96	128	104	90	128	96	85	119	86	69	108	73	52	96	56	41	88	45	36	82	39	32	69	34	43
			Exposed	128	114	96	128	101	89	127	94	83	120	87	72	115	82	60	107	72	51	99	61	44	89	45	37	81	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	129	129	129	129	129	129	129	123	129	128	117	129	122	109	129	116	100	126	110	94	114	96	84	98	87	70	89	79	55	81	63	44	65	52	38	53	43	34	
			Exposed	129	122	109	129	115	98	123	106	91	116	97	86	106	92	80	97	86	69	91	82	59	82	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	119	100	119	119	90	119	100	82	115	92	70	105	85	57	96	78	48
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		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	116	124	117	99	124	103	90	124	93	82	119	86	68	110	77	55
			Exposed	124	124	124	124	124	124	124	124	124	124	124	117	124	123	108	124	117	99	124	109	93	124	94	83	117	85	66	106	71	51	96	56	41	88	45	36	82	39	32
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	124	127	125	114	127	116	99	122	105	91	114	95	84	100	88	74
			Exposed	127	127	127	127	127	127	127	127	127	125	127	127	119	127	124	113	127	119	103	123	106	92	112	94	83	97	86	68	88	78	54	81	63	44	66	53	39		
	C	0-7	Interior	119	119	119	119	119	119	119	119	115	119	119	106	119	119	98	119	115	93	119	108	88	118	96	77	108	87	61	97	79	49	89	65	41	83	54	36	72	46	32
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		7-20	Interior	119	119	119	119	119	119	119	119	114	119	119	102	119	119	95	119	114	89	119	104	84	119	92	67	104	83	51	93	67	41	85	53	36	75	43	32	60	38	43
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		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	121	124	124	114	124	120	104	124	114	96	124	97	86	121	88	73	112	79	56	99	61	44	91	49	38	85	41	34
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	D	0-7	Interior	119	119	117	119	119	109	119	119	99	119	115	93	119	108	88	119	100	83	118	95	75	105	85	58	95	75	46	87	61	39	79	50	34	66	42	30	55	37	40
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		7-20	Interior	119	119	116	119	119	105	119	119	96	119	114	90	119	104	84	119	96	77	118	91	66	101	81	49	91	63	40	82	49	34	67	40	30	54	36	40	44	32	36
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		20-27	Interior	126	126	126	126	126	123	126	126	116	126	121	105	126	114	96	126	104	90	126	96	85	119	86	69	108	73	52	96	56	41	88	45	36	82	39	32	69	34	43
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		27-45	Interior	128	128	128	128	128	128	128	128	123	128	128	117	128	122	109	128	116	100	126	110	94	114	96	84	98	87	70	89	79	55	81	63	44	65	52	38	53	43	34
			Exposed	128	122	109	128	115	98	123	106	91	116	97	86	106	92	80	97	86	69	91	82	59	82	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	100	105	105	90	105	100	82	105	92	70	105	85	57	96	78	48
			Exposed	105	105	105	105	105	105	105	105	105	101	105	105	95	105	105	90	105	105	103	85	105	92	71	103	84	56	94	73	45	86	60	39	80	50	34	67	42	30	
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		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	116*	117*	117*	99	117*	103	90	117*	93	82	117*	86	68	110	77	55
			Exposed	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	108	117*	117*	99	117*	109	93	117*	94	83	117*	85	66	106	71	51	96	56	41	88	45	36	82	39	32
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	105*	91	112*	95	84	100	88	74					
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	103*	112*	106*	92	112*	94	83	97	86	68	88	78	54	81	63	44	66	53	39
	C	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	98	105	105	93	105	105	88	105	96	77	105	87	61	97	79	49	89	65	41	83	54	36	72	46	32
			Exposed	105	105	98	105	105	91	105	104	85	105	97	80	105	91	69	105	86	59	99	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	105	105	105	105	105	105	105	105	105	102	105	105	95	105	105	89	105	104	84	105	92	67	104	83	53	36	75	43	32	60	38	43							
			Exposed	105	105	95	105	105	88	105	100	82	105	93	70	105	87	59	103	82	50	96	72	43	86	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	114*	117*	117*	104	117*	117*	96	117*	97	86	117*	88	73	112*	79	56	99	61	44	91	49	38	85	41	34	
			Exposed	117*	117*	114*	117*	117*	101	117*	110	94	117*	99	87	117*	93	82	117*	87	71	115*	82	60	100	63	45	90	48	38	83	39	33	70	34	43	57	30	38	48	41	34
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	111*	95	112*	98	86	102*	89	75	92	82	60	84	69	48	74	57	41
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	105*	112*	112*	96	112*	104*	90	112*	97	85	106*	92	80	92	82	61	83	67	47	68	54	39	53	44	34	42	38	30	38	34	41
	D	0-7	Interior	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	100	83	105	95	75	105	85	58	95	75	46	87	61	39	79	50	34	66	42	30	55	37	40
			Exposed	105	105	87	105	99	81	105	92	70	105	87	60	99	82	52	94	73	45	89	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	105	105	105	105	105	105	105	105	90	105	104	84	105	96	77	105	91	66	101	81	49	91	63	40	82	49	34	67	40	30	54	36	40	44	32	36			
			Exposed	105	103	84	105	95	74	105	88	61	104	82	51	96	72	43	90	61	39	85	53	36	69	41	30	52	35	39	41	30	32	35	26	43	31	23				
		20-27	Interior	117	117	117	117	117	117	117	116	117	117	105	117	114	96	117	104	90	117	96	85	117	86	69	108	73	52	96	56	41	88	45	36	82	39	32	69	34	43	
			Exposed	117	114	96	117	101	89	117	94	83	117	87	72	115	82	60	107	72	51	99	61	44	89	45	37	81	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	110*	116*	116*	100	116*	110*	94	114*	96	84	98	87	70	89	79	55	81	63	44	65	52	38	53	43	34
			Exposed	116*	116*	109*	116*	115*	98	116*	106	91	116*	97	86	106	92	80	97	86	69	91	82	59	82	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34

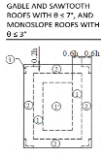
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

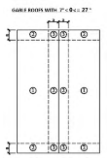
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

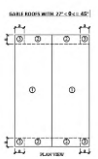
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

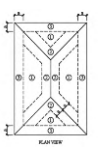












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

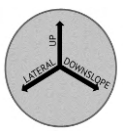
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

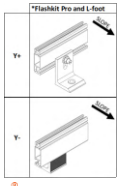
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	82	94	92	70	94	85	57	94	78	48
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	90	94	94	85	94	92	71	94	84	56	94	73	45	86	60	39	80	50	34	67	42	30
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	87	102*	94	77	102*	88	60	100*	81	48	92	66	41
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	91	102*	102*	86	102*	99*	81	102*	88	61	99*	79	47	90	61	39	82	48	34	67	40	30	54	36	40
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	90*	95*	93*	82*	95*	86*	68	95*	77	55
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	93*	95*	94*	83*	95*	85*	66	95*	71	51	95*	56	41	88*	45	36	82*	39	32
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	84*	89*	88*	74
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	68	88*	78*	54	81*	63	44	66	53	39
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	77	94	87	61	94	79	49	89	65	41	83	54	36	72	46	32
			Exposed	94	94	94	94	94	91	94	94	85	94	94	80	94	91	69	94	86	59	94	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	89	102*	102*	84	102*	92	67	102*	83	51	93	67	41	85	53	36	75	43	32	60	38	43
			Exposed	102*	102*	94	102*	102*	88	102*	100*	82	102*	93	70	102*	87	59	102*	82	50	94	72	43	86	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	86*	95*	88*	73	95*	79	56	95*	61	44	91*	49	38	85*	41	34
			Exposed	95*	95*	95*	95*	95*	95*	95*	94*	95*	95*	87*	95*	93*	82*	95*	87*	71	95*	82*	60	95*	63	45	90*	48	38	83*	39	33	70	34	43	57	30	38	48	41	34
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	89*	89*	76*	89*	82*	60	84*	69	48	75*	57	41
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	82*	61	83*	67	47	68	54	39	53	44	34	42	38	30	38	34	41
	D	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	93	94	94	94	88	94	94	83	94	94	75	94	85	58	94	75	46	87	61	39	79	50	34	66	42	30	55	37	40
			Exposed	94	94	87	94	94	81	94	92	70	94	94	87	60	94	82	52	94	73	45	89	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	94	94	94	94	94	94	94	94	94	94	94	90	94	94	84	94	94	77	94	91	66	94	81	49	91	63	40	82	49	34	67	40	30	54	36	40	44	32	36
			Exposed	94	94	84	94	94	74	94	88	61	94	82	51	94	72	43	90	61	39	85	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	96*	104*	90*	104*	96*	85	104*	86	69	104*	73	52	96*	56	41	88*	45	36	82	39	32	69	34	43
			Exposed	104*	104*	96*	104*	101*	89*	104*	94*	83	104*	87	72	104*	82	60	104*	72	51	99*	61	44	89*	45	37	81	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	96*	84*	96*	87*	70	89*	79	55	81*	63	44	65	52	38	53	43	34
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	91*	96*	96*	86*	96*	92*	81*	96*	86*	69	91*	82*	59	82*	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	71	90	90	90	90	90	73	90	90	90	90	90	90	90	90	90
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	87*	91*	91*	77*	91*	88*	60	91*	81*	48	91*	66	41
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	86*	91*	91*	84*	91*	91*	67	91*	83*	51	91*	67	41
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	68*	75*	75*	55
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	66*	75*	71*	51	75*	45	36	75*	39	32
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	68*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	77	90	87	61	90	79	49	89	65	41	83	54	36	72	46	32
			Exposed	90	90	90	90	90	90	90	90	85	90	90	80	90	90	69	90	86	59	90	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	89*	91*	91*	84*	91*	91*	67	91*	83*	51	91*	67	41	85*	53	36	75	43	32	60	38	43
			Exposed	91*	91*	91*	91*	91*	88*	91*	91*	82*	91*	91*	70	91*	87*	59	91*	82*	50	91*	72	43	86*	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	56	75*	61	44	75*	49	38	75*	41	34
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	71*	75*	75*	60	75*	63*	45	75*	48	38	75*	39	33	70*	34	43	57	30	38	48	41	34
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	67*	47	68*	54	39	53	44	34	42	38	30	38	34	41
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	93	93	88	93	93	83	93	93	75	93	85	58	93	75	46	87	61	39	79	50	34	66	42	30	55	37	40
			Exposed	93	93	87	93	93	81	93	92	70	93	87	60	93	82	52	93	73	45	89	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	96*	97*	97*	90*	97*	97*	84*	97*	96*	77	97*	91*	66	97*	81	49	91*	63	40	82	49	34	67	40	30	54	36	40	44	32	36
			Exposed	97*	97*	84*	97*	95*	74	97*	88*	61	97*	82	51	96*	72	43	90*	61	39	85*	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	69*	82*	73*	52	82*	56	41	82*	45	36	82*	39	32	69*	34	43
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	72*	82*	82*	60	82*	72*	51	82*	61	44	82*	45	37	81*	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	70*	76*	76*	55	76*	63	44	66*	52	38	53	43	34
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	69*	76*	76*	59	76*	65*	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34			
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	70	84	84	57	84	78	48
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	71	84	84	56	84	73	45	84	60	39	80	50	34	67	42	30
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	60	74*	74*	48	74*	66*	41
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	61	74*	74*	47	74*	61	39	74*	48	34	67*	40	30	54	36	40
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	55*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	51	61*	56*	41	61*	45	36	61*	39	32			
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	44	58*	53*	39
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	77	84	84	61	84	79	49	84	65	41	83	54	36	72	46	32
			Exposed	84	84	84	84	84	84	84	84	84	84	84	80	84	84	69	84	84	59	84	82	52	84	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	67*	74*	74*	47	74*	67*	41	74*	53	36	74*	43	32	60	38	43
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	70*	74*	74*	59	74*	74*	50	74*	72*	43	74*	54	36	72*	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	34
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60*	61*	61*	48	61*	39	33	61*	34	43	57*	30	38	48	41	34
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	41
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49*	58*	57*	41
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	87	75	87	85	58	87	75	46	87	61	39	79	50	34	66	42	30	55	37	40
			Exposed	87	87	87	87	87	81	87	87	70	87	87	60	87	82	52	87	73	45	87	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	77*	82*	82*	66	82*	81*	49	82*	63	40	82*	49	34	67	40	30	54	36	40	44	32	36
			Exposed	82*	82*	82*	82*	82*	82*	82*	61	82*	82*	51	82*	72*	43	82*	61	39	82*	53	36	69*	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23	
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	52	67*	56	41	67*	45	36	67*	39	32	67*	34	43
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	51	67*	61*	44	67*	45	37	67*	38	31	65*	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	55*	63*	63*	44	63*	52	38	53	43	34
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	59*	63*	63*	45	63*	50	38	49	41	33	40	36	43	35	32	38	32	43	34

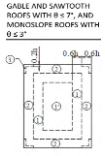
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

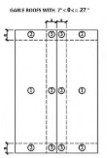
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

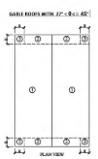
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

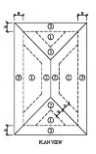












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

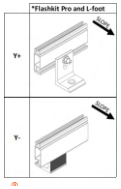
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	70	77	77	57	77	77	48			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	56	77	73	45	77	60	39	77	50	34	67	42	30
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	48	63*	63*	41			
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	47	63*	61*	39	63*	48	34	63*	40	30	54*	36	40
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41	52*	45*	36	52*	39	32
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	39		
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	61	77	77	49	77	65	41	77	54	36	72	46	32
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	69	77	77	59	77	77	52	77	66	41	77	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	51	63*	63*	41	63*	53	36	63*	43	32	60*	38	43
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	50	63*	63*	43	63*	54*	36	63*	42	31	56*	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44*	52*	49*	38	52*	41	34
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45*	52*	52*	39	33	52*	34	43	52*	30	38
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	41
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	39	49*	44*	34	43*	38	30	38	34	41
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	75	81	81	58	81	75	46	81	61	39	79	50	34	66	42	30	55	37	40
			Exposed	81	81	81	81	81	81	81	81	70	81	81	60	81	81	52	81	73	45	81	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	66*	69*	69*	49	69*	63*	40	69*	49	34	67*	40	30	54	36	40	44	32	36
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	61*	69*	69*	51	69*	69*	43	69*	61*	39	69*	53	36	69*	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	41	57*	45	36	57*	39	32	57*	34	43
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	51*	57*	57*	44	57*	45	37	57*	38	31	57*	33	41	52*	43	36	43	38	32	38	34	28
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	44	54*	52*	38	53*	43	34
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	45	54*	50*	38	49*	41	33	40	36	43	35	32	38	32	43	34
70	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	57	72	72	48			
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	72	72	60	72	72	60	72	60	39	72	50	34	67	42	30
		7-20	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	48*	54*	54*	41
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47*	54*	54*	39	54*	48*	34	54*	47*	30	54*	36	40
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	45*	36	45*	39*	32
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	61	72	72	49	72	65	41	72	54	36	72	46	32
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	59	72	72	52	72	66	41	72	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	41	54*	53*	36	54*	43	32
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	50*	54*	54*	43	54*	54*	36	54*	42	31	54*	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	38	45*	41*	34
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	39*	33	45*	34	43	45*	30	38	45*	41	34
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	34	42*	38*	30	38*	34	41
	D	0-7	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	58	75	75	46	75	61	39	75	50	34	66	42	30	55	37	40
			Exposed	75	75	75	75	75	75	75	75	70	75	75	60	75	75	52	75	73	45	75	65	40	75	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	49	60*	60*	40	60*	49	34	60*	40	30	54*	36	40	44	32	36
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	51*	60*	60*	43	60*	60*	39	60*	53*	36	60*	41	30	52*	35	39	41	30	34	36	40	30	32	35	28	43	31	23
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41	50*	45*	36	50*	39	32	50*	34	43
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	44*	50*	45*	37	50*	38	31	50*	33	41	50*	43	36	43*	38	32	38	34	28
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	38	47*	43*	34
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	38	47*	41*	33	40*	36	43	35	32	38	32	43	34
80	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	48
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	60	39	67	50	34	67	42	30
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	39	48*	48*	34	48*	40	30	48*	36	40
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	39*	32
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	49	67	67	41	67	54	36	67	46	32
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	59	67	67	52	67	66	41	67	53	35	67	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	48*	36	48*	43*	32	48*	38	43
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	48*	36	48*	42*	31	48*	36	41	44*	32	36	38	42	32	34	38	28
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	34*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	39*	33	40*	34*	43	40*	30	38	40*	41	34
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	38*	30	38*	34*	41
	D	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	58	71	71	46	71	61	39	71	50	34	66	42	30	55	37	40
			Exposed	71	71	71	71	71	71	71	71	70	71	71	60	71	71	52	71	71	45	71	65	40	71	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	40	53*	49*	34	53*	40	30	53*	36	40	44	32	36
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	43	53*	53*	39	53*	53*	36	53*	41	30	52*	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	36	44*	39*	32	44*	34	43
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37	44*	44*	31	44*	44*	33	44*	44*	30	43*	36	32	38*	34	28
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	34
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	41*	33	40*	36*	43	36*	32	38	32	43	34

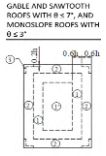
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

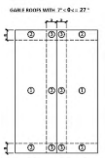
10 Highlighted cell indicates 3-rail system span. Contact Unirac Engineering Services for support.

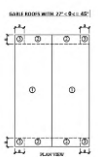
34 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

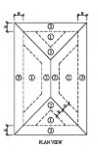












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

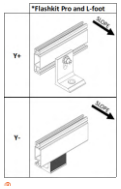
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	48
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	56	63	63	45	63	60	39	63	50	34	63	42	30
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	34	43*	40*	30	43*	36	40
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	49	63	63	41	63	54	36	63	46	32
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	52	63	63	41	63	53	35	63	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36	43*	43*	32	43*	38*	43
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36	43*	42*	31	43*	36	41	43*	32	36	38*	42	32	34	38	28
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	43	36*	36*	30	36*	41	34
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	41
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	67	46	67	61	39	67	50	34	66	42	30	55	37	40
			Exposed	67	67	67	67	67	67	67	67	67	67	67	60	67	67	52	67	67	45	67	65	40	67	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	40	47*	47*	34	47*	40	30	47*	36	40	44*	32	36
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	47*	47*	39	47*	47*	36	47*	41*	30	47*	35	39	41*	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	39*	32	39*	34*	43
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	39*	38*	31	39*	33	41	39*	43	36	39*	38	32	38*	34	28
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	34*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	36*	43	35*	32*	38	32*	43	34
100	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	48
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	30	39*	36*	40
		20-27	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	49	60	60	41	60	54	36	60	46	32
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	52	60	60	41	60	53	35	60	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	39*	32	39*	38*	43
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	39*	31	39*	36*	41	39*	32	36	38*	42	32	34*	38	28
		20-27	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	43*	32*	30*	38	32*	41*	34
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	30*	31*	31*	41*
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	63	46	63	61	39	63	50	34	63	42	30	55	37	40
			Exposed	63	63	63	63	63	63	63	63	63	63	63	60	63	63	52	63	63	45	63	63	40	63	51	34	63	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	34	43*	40*	30	43*	36	40	43*	32	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	36	43*	41*	30	43*	35	39	41*	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*	36*	34*	43
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	31	36*	33*	41	36*	43	36	36*	38	32	36*	34	28
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	33*	34*	34*	43	34*	32*	38	32*	43	34

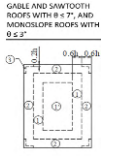
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

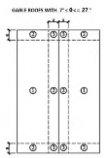
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

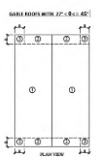
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

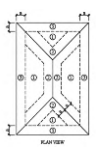












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

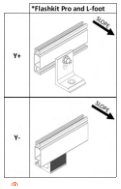
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	135	150	142	125	150	133	116	145	124	106	137	117	95	129	110	87
			Exposed	150	150	150	150	150	150	150	150	144	150	150	136	150	148	130	150	141	124	150	135	119	146	125	107	135	117	94	126	106	84	119	96	65	112	88	57	102	80	51
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	136	151	148	125	151	135	115	151	125	102	142	117	90	132	107	81
			Exposed	151	151	151	151	151	151	151	151	147	151	151	138	151	151	131	151	146	124	151	139	118	151	126	103	140	116	89	129	103	66	119	90	57	110	80	51	97	60	80
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	145	130	151	133	120	151	124	111	144	116	98
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	149	133	151	134	121	151	123	100	141	113	94	131	99	82	123	87	61	116	66	54
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	150	152	150	138	152	140	128	152	131	120	143	124	113			
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	149	152	152	141	152	141	129	152	130	119	139	121	108	128	113	95	119	102	85	110	92	65
	C	0-7	Interior	150	150	150	150	150	150	150	150	148	150	150	140	150	150	133	150	145	127	150	139	122	150	128	112	139	119	98	130	111	88	122	100	75	115	91	60	106	84	54
			Exposed	150	150	133	150	143	126	150	136	119	150	130	114	145	124	105	138	119	97	132	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	143	151	151	135	151	151	128	151	143	122	151	130	109	145	119	94	133	108	82	123	95	61	115	85	53	103	64	84
			Exposed	151	151	135	151	149	126	151	140	119	151	132	112	151	125	101	144	119	92	136	113	85	124	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	139	125	151	127	115	145	117	99	135	104	87	126	92	64	119	82	57
			Exposed	151	151	151	151	151	144	151	151	134	151	141	126	151	151	133	151	148	120	151	126	114	148	120	104	136	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	145	133	152	134	122	144	124	114	133	116	100	123	107	90	115	96	81
			Exposed	152	152	152	152	152	151	152	152	142	152	147	134	152	139	128	152	133	122	148	127	116	133	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	150	150	150	150	150	142	150	150	134	150	146	128	150	139	122	150	133	117	149	127	111	137	118	96	127	108	85	119	97	65	112	88	57	101	80	50	92	63	72
			Exposed	150	139	122	150	131	115	146	125	107	139	119	98	132	114	91	127	107	84	122	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	151	151	151	151	151	145	151	151	136	151	151	128	151	143	122	151	136	116	151	129	108	142	118	91	130	104	73	120	91	58	110	80	51	96	60	78	86	53	60
			Exposed	151	143	121	151	134	114	151	126	103	145	119	93	136	113	85	129	103	68	123	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	147	151	151	138	151	145	130	151	137	124	151	125	112	142	114	95	132	99	83	123	87	61	116	65	54	106	58	85
			Exposed	151	151	137	151	143	128	151	134	121	151	126	114	148	120	104	141	114	94	134	104	86	124	88	62	115	64	53	102	55	82	92	86	61	83	64	53	64	57	48
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	151	138	152	144	132	152	132	121	141	122	110	129	114	96	119	102	85	109	91	65	96	83	57
			Exposed	152	152	145	152	149	136	152	140	129	152	133	122	148	127	116	140	121	109	132	116	100	120	103	86	107	90	63	92	80	55	81	61	85	60	54	64	53	82	57
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	125	141	133	116	141	124	106	137	117	95	129	110	87
			Exposed	141	141	141	141	141	141	141	141	141	141	141	136	141	141	141	141	141	124	141	135	119	141	125	107	135	117	94	126	106	84	119	96	65	112	88	57	102	80	51
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	125	141	135	115	141	125	102	141	117	90	132	107	81
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	124	141	139	118	141	126	103	140	116	89	129	103	66	119	90	57	110	80	51	97	60	80
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	145	130	147	133	120	147	124	111	144	116	98
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	133	147	134	121	147	123	109	141	113	94	131	99	82	123	87	61	116	66	54
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	150	138	151	140	128	151	131	120	143	124	113
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	141	129	139	121	108	128	113	95	119	102	85	110	92	65			
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	139	122	141	128	112	139	119	98	130	111	88	122	100	75	115	91	60	106	84	54
			Exposed	141	141	133	141	141	126	141	136	119	141	141	114	141	141	124	105	138	119	97	132	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	130	141	141	125	141	135	115	141	125	102	141	117	90	132	107	81
			Exposed	141	141	135	141	141	126	141	140	119	141	132	112	141	125	101	141	119	92	136	113	85	124	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	138	147	139	125	147	127	115	145	117	99	135	104	87	126	92	64	119	82	57
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		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	145	133	151	134	122	144	124	114	133	116	100	123	107	90	115	96	81
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	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	139	122	141	128	112	139	119	98	130	111	88	122	100	75	115	91	60	106	84	54
			Exposed	141	141	133	141	141	126	141	136	119	141	141	114	141	141	124	105	138	119	97	132	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	130	141	141	125	141	135	115	141	125	102	141	117	90	132	107	81
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		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	145	130	147	133	120	147	124	111	144	116	98
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		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	150	138	151	140	128	151	131	120	143	124	113
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20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	116	127	124	106	127	117	95	127	110	87
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		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	115	128	125	102	128	117	90	128	107	81
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		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	130	136	133	120	136	124	111	136	116	98
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		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	140	128	141	131	120	140	124	113
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	129	141	130	119	139	121	108	128	113	95	119	102	85	110	92	65
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	112	127	127	112	127	111	88	122	100	75	115	91	60	106	84	54
			Exposed	127	127	127	127	127	126	127	127	119	127	127	114	127	124	105	127	119	97	127	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	112	128	128	112	128	111	88	122	100	75	115	91	60	106	84	54
			Exposed	128	128	128	128	128	126	128	128	119	128	128	112	128	125	101	128	119	92	128	113	85	124	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	136	125	136	136	117	136	136	112	136	127	115	136	127	99
			Exposed	136	136	136	136	136	136	136	136	134	136	136	126	136	133	120	136	126	114	136	120	104	136	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	133	141	141	134	141	141	122	140	124	114	133	116	100	123	107	90	115	96	81
			Exposed	141	141	141	141	141	141	141	141	141	141	141	134	141	139	128	141	133	122	141	127	116	133	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	127	111	127	118	96	127	108	85	119	97	65	112	88	57	101	80	50	92	63	72
			Exposed	127	127	122	127	127	115	125	107	127	119	98	127	114	91	127	107	84	122	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	122	128	128	116	128	128	108	128	118	91	128	104	73	120	91	58	110	80	51	96	60	78	86	53	60
			Exposed	128	128	121	128	128	114	128	126	103	128	119	93	128	113	85	128	103	68	123	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	130	138	137	124	138	125	112	138	114	95	132	99	83	123	87	61	116	65	54	106	58	85
			Exposed	138	138	137	138	138	128	138	134	121	138	126	114	138	120	104	138	120	104	138	114	94	134	104	86	124	88	62	115	64	53	102	55	82	92	86	61	83	64	53	64	57	48
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	138	143	143	132	143	132	121	141	122	110	129	114	96	119	102	85	109	91	65	96	83	57
			Exposed	143	143	143	143	143	136	143	140	129	143	133	122	143	127	116	140	121	109	132	116	100	120	103	86	107	90	63	92	80	55	81	61	85	60	54	64	53	82	57

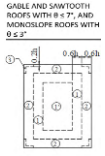
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

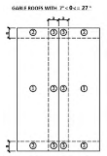
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

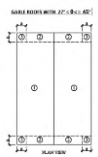
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

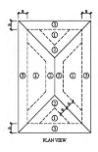












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

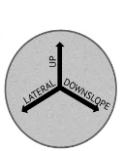
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

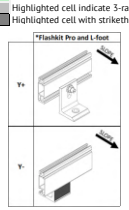
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	106	118	118	95	118	110	87			
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	117	94	118	106	84	118	96	65	112	88	57	102	80	51
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	115	119	119	102	119	119	90	119	107	81			
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	118	119	119	103	119	116	89	119	103	66	119	90	57	110	80	51	97	60	80
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	120	128	124	111	128	116	98			
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	121	128	123	100	128	113	94	128	99	82	123	87	61	116	86	54
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	120	124*	124*	113			
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119	124*	121	108	124*	113	95	119	102	85	110	92	65
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	98	118	111	88	118	100	75	115	91	60	106	84	54
			Exposed	118	118	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	97	118	114	91	118	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	82	119	95	61	115	85	53	103	64	84
			Exposed	119	119	119	119	119	119	119	119	119	112	119	119	101	119	119	92	119	113	85	119	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47			
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	127	115	128	117	99	128	104	87	126	92	64	119	82	57
			Exposed	128	128	128	128	128	128	128	128	128	126	128	128	120	128	126	114	128	120	104	128	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57			
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	123*	124*	124*	114	124*	116	100	124*	107	90	115	96	81
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122	124*	124*	116	124*	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	111	118	118	96	118	108	85	118	97	65	112	88	57	101	80	50	92	63	72
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	108	119	119	91	119	104	73	119	91	58	110	80	51	96	60	78
			Exposed	119	119	119	119	119	114	119	119	103	119	119	93	119	113	85	119	103	68	119	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	124	130	125	112	130	114	95	130	99	83	123	87	61	116	65	54	106	58	85
			Exposed	130	130	130	130	130	128	130	130	121	130	126	114	130	120	104	128	105	86	124	88	62	115	64	53	102	55	82	92	86	61	83	64	53	64	57	46			
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	121	129	122	110	129	114	96	119	102	85	109	91	65	96	83	57
			Exposed	129	129	129	129	129	129	129	129	129	122	129	127	116	129	121	109	129	116	100	120	103	86	107	90	63	92	80	55	81	61	85	60	54	64	53	82	57			
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	95	115	110	87			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	94	115	106	84	115	96	65	112	88	57	102	80	51
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	103	116	116	89	116	103	66	116	90	57	110	80	51	97	60	80
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	103	116	116	89	116	103	66	116	90	57	110	80	51	97	60	80
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	111*	114*	114*	98			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	109*	114*	113*	94	114*	114*	99	114*	92	64	114*	87	61	114*	66	54
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*			
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	108*	110*	110*	95	110*	102*	85	110*	92	65			
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	112	115	115	98	115	111	88	115	100	75	115	91	60	106	84	54
			Exposed	115	115	115	115	115	115	115	115	115	114	115	115	105	115	115	97	115	114	91	115	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53		
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	109	116	116	94	116	108	82	116	95	61	115	85	53	103	64	84
			Exposed	116	116	116	116	116	116	116	116	116	112	116	116	101	116	116	92	116	113	85	116	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47			
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104	114*	105*	88	114*	90	63	114*	71	55	107*	58	86	96	51	64	87	81	57
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	107*	90	110*	96	81
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	101*	110*	105*	88	110*	93	68	97	83	58	85	64	51
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	111	118	118	96	118	108	85	118	97	65	112	88	57	101	80	50	92	63	72
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	116	118	118	108	118	118	91	118	104	73	118	91	58	110	80	51	96	60	78	86	53	60
			Exposed	118	118	118	118	118	114	118	118	103	118	118	93	118	113	85	118	103	68	118	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	112	119*	114	95	119*	99	83	119*	87	61	116*	65	54	106	58	85
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	114	119*	119*	104	119*	114	94	119*	104	86	119*	94	68	102	88	62	115*	64	53	102	55	82	92	86	61	83	64	53	64	57	46
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	109*	115*	115*	100	115*	103	86	108*	90	63	92	80	55	81	61	85	60	54	64	53	82	57
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	100*	115*	103*	86	105*	90*	63	92*	80	55	81	61	85	60	54	64	53	82	57		
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	106	108	108	95	108	108	87			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	107	108	108	88	108	106	84	108	96	65	108	88	57	102	80	51
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	102	113*	113*	90	113*	107*	81
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	103	113*	113*	89	113*	103	66	113*	90	57	110*	80	51	97	60	80
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	98*
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94*	102*	99*	82	102*	87*	61	102*	66	54
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	95*	96*	96*	85*	96*	92*	65		
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	105	108	108	97	108	108	91	108	101	78	108	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	109*	113*	113*	94	113*	108*	82	113*	95	61	112*	85	53	103	64	84
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	112*	113*	113*	101	113*	113*	92	113*	113*	85	113*	96	61	113*	83	52	98	61	81	86	54	60	64	84	53	57	63	47			
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	87*	102*	92
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	88*	102*	90*	63	102*	71	55	102*	58	86	96*	51	64
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	90*	96*	96*	81*			
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	88*	96*	93*	68	96*	83*	58	85*	64	51	63	57	80
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	111	112	112	96	112	108	85	112	97	65	112	88	57	101	80	50	92	63	72			
			Exposed	112	112	112	112	112	112	107	112	112	98	112	112	91	112	107	84	112	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45		
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	108	116*	116*	91	116*	104	73	116*	91	58	110	80	51	96	60	78	86	53	60
			Exposed	116*	116*	116*	116*	116*	113	116*	116*	103	116*	116*	93	116*	113	85	116*	103	68	116*	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	95*	108*	99*	83	108*	87	61	108*	65	54	106*	58	85
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	104*	108*	108*	94	108*	104*	86	108*	88	62	108*	84	53	102*	55	82	92	86	61	83	64	53	64	57	46			
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	96*	105*	102*	85	105*	92*	65	96*	83	57			
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	100*	105*	103*	86	105*	90*	63	92*	80	55	81	61	85	60	54	64	53	82	57		

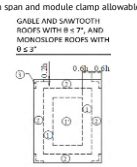
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

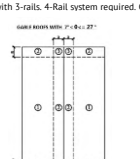
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

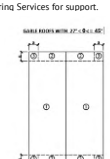
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

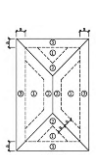












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

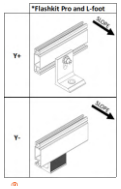
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	95	99	99	99	99	99	87
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	84	99	96	65	99	88	57	99	80	51
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	102*	105*	105*	90*	105*	105*	81
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	103*	105*	105*	89*	105*	103*	66	105*	90*	57	105*	80	51	97*	60	80
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	54
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	65
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	88	99	99	75	99	91	60	99	84	54			
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	97	99	99	78	99	90	59	99	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	94*	105*	105*	82	105*	95*	61	105*	85	53	103*	64	84
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	96*	61	105*	85	98*	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	64	87*	82*	57
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	63	87*	71	55	87*	87*	58	86	87*	51	64	87*	81	57
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	69*	82*	82*	58	82*	64	51	63	57	80
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	96	104	104	85	104	97	65	104	104	88	57	101	80	50	92	63	72
			Exposed	104	104	104	104	104	104	104	104	104	104	104	98	104	104	91	104	104	84	104	100	74	104	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	91	110*	104*	73	110*	91	58	108*	80	51	96	60	78	86	53	60
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	103*	110*	110*	93	110*	110*	85	110*	103*	68	110*	94	60	110*	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	82	92*	86	61	83*	64	53	64	57	46
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	94*	95*	95*	86*	95*	88*	62	95*	64	53	95*	55	82	92*	86	61	83*	64	53	64	57	46
		27-45	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	85*	90*	90*	65	90*	83*	57
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	86*	90*	90*	63	90*	80*	55	81*	61	85	60	54	64	53	82	57
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	87
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	84	92	92	84	92	92	84	92	92	92	92	92	92	92	92	87
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	81*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	66	91*	90*	57	91*	80*	51	91*	60	80
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	66*	54
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	65*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	75	92	91	60	92	84	54
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	78	92	92	59	92	81	51	92	63	73	85	56	60	72	50	53
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	82*	91*	91*	61	91*	85*	53	91*	64	84
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	85*	91*	91*	61	91*	83*	52	91*	61	81	86*	54	60	64	84	53	57	63	47
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64*	75*	75*	57
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	71*	55	75*	58	86	75*	51	64	75*	81	57
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	68*	71*	71*	58	71*	64*	51	64*	57	80
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	96	97	97	85	97	97	65	97	88	57	97	80	50	92	63	72
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	91	97	97	84	97	97	74	97	88	58	97	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	91*	100*	100*	73	100*	91*	58	100*	80	51	96*	60	78	86*	53	60
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	93*	100*	100*	85*	100*	100*	68	100*	94*	60	100*	81	51	95*	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	61	83*	65	54	83*	58	85
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	62	83*	83*	55	82	83*	86	61	83*	64	53	64	57	46		
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	65	78*	78*	57
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	55	78*	61	85	60	54	64	53	82	57
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	87	87	87	65	87	87	87	87	87	57	87	80	51
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	66	80*	80*	57	80*	80*	51	80*	60	80
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	61*	66*	66*	54
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	75	87	87	60	87	84	54
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	78	87	87	59	87	81	51	87	63	73	85	56	60	72	50	53
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	80*	53	80*	64	84
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	80*	52	80*	61	81	80*	54	60	64	84	53	57	63	47
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	64*	66*	66*	57*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	63*	66*	66*	55	66*	58	86*	66*	51	64	66*	81	57
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	58*	63*	63*	51	63*	57*	80*
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85	91	91	65	91	88	57	91	80	50	91	63	72
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	74	91	88	58	91	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	73	88*	88*	58	88*	80*	51	88*	60	78	86*	53	60
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	85*	88*	88*	68	88*	88*	60	88*	81	51	88*	59	70	83*	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	61	73*	65*	54	73*	58	85
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	62*	73*	73*	64*	73*	55	82	73*	86	61	73*	64	53	64*	57	46
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	65*	69*	69*	57
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	64*	69*	69*	55	69*	61*	85	60*	54	64	53	82	57

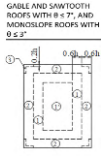
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

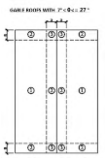
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

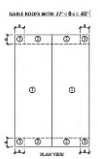
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

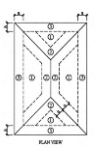












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

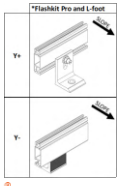
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	65	82	82	57	82	80	51		
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	66*	72*	72*	57	72*	72*	51	72*	60	80
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	54*
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	75	82	82	60	82	82	54		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	82	59	82	81	51	82	63	73
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	52	72*	61*	72*	54	60
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	55*	59*	58*	86*	59*	51*	64
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	57	86	86	65	86	86	57	86	63
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	74	86	86	58	86	76	50	86	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73*	79*	79*	79*	79*	79*	79*	79*	51	79*	60	78	79*	53	60	
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	68*	79*	79*	60	79*	79*	51	79*	59	70	79*	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	61*	66*	65*	54	66*	58*	85*	
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62*	66*	64*	53	66*	55	82	66*	86*	61	66*	64	53	64*	57	46
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	61*	85*	60*	54*	64	53*	83*	57
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	57*	65*	65*	51	65*	60*	80
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	60	78	78	54		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	59	78	78	51	78	63	73
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	61*	65*	65*	53	65*	64*	84*	
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	61*	65*	65*	52	65*	61*	81	65*	54	60	64*	84*	53	57*	63	47
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	81*	54*	51*	64	54*	81*	57
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	57	82	80	50	82	63	72	
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	74	82	82	58	82	76	50	82	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	51	72*	60	78	72*	53	60	
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	72*	60	72*	72*	51	72*	59	70	72*	51	57	61*	78	50	54	60	44	85	53	39
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	54*	59*	58*	85*	
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	55*	82*	59*	86*	61	59*	64	53	59*	57	46			
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	55*	57*	57*	85*	57*	54*	64	53*	82*	57

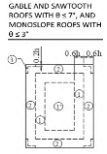
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

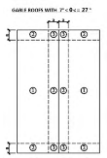
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

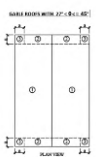
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

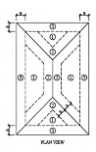












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

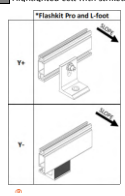
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	116	120	120	110	120	120	104	120	113	93	120	102	84	114	93	72	105	85	58	97	78	48	90	65	40
			Exposed	120	120	116	120	120	109	120	119	101	120	114	95	120	107	89	120	101	84	116	95	77	105	86	59	95	76	47	87	61	37	80	50	32	66	42	43	56	35	38
		7-20	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	115	120	120	109	120	120	102	120	112	91	120	100	82	114	90	64	103	82	50	94	68	40	87	55	34
			Exposed	120	120	115	120	120	107	120	119	99	120	113	92	120	106	86	120	99	81	116	93	69	104	83	51	93	66	39	84	51	33	72	40	43	56	34	38	45	30	34
		20-27	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	117	121	117	105	121	107	94	121	97	85	117	88	72	109	81	57	101	64	46
			Exposed	121	121	121	121	121	120	121	121	114	121	118	107	121	113	99	121	106	93	121	100	87	117	88	74	108	79	55	98	59	42	90	46	34	83	37	30	71	32	41
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	114	121	115	103	120	106	93	113	97	85	103	89	76	94	83	61
			Exposed	121	121	121	121	121	121	121	121	120	121	121	115	121	119	109	121	115	102	121	109	96	113	98	86	101	88	74	92	81	57	83	65	45	70	53	37	55	44	32
	C	0-7	Interior	120	120	118	120	120	113	120	120	105	120	116	98	120	111	92	120	105	87	119	99	82	109	89	65	99	81	51	90	66	41	83	54	34	72	45	30	60	38	40
			Exposed	120	111	92	120	103	85	117	96	79	111	90	67	104	85	57	98	80	50	93	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	120	120	118	120	120	111	120	120	103	120	116	96	120	110	90	120	103	84	119	97	77	108	86	56	97	73	43	88	56	34	80	44	30	62	36	40	50	32	36
			Exposed	120	110	89	120	101	83	117	94	71	110	87	59	103	82	49	96	71	42	90	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	121	121	121	121	121	121	121	121	117	121	121	111	121	116	104	121	111	97	121	104	91	120	92	81	112	83	61	101	66	47	93	51	37	86	41	32	78	34	43
			Exposed	121	116	103	121	109	95	121	100	88	121	93	82	116	87	71	111	82	59	104	72	50	94	52	37	85	40	31	73	33	41	58	29	36	48	38	32	40	34	26
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	118	121	121	113	121	117	106	121	113	100	116	101	89	106	92	81	95	83	63	87	71	50	78	58	40	62	48	34
			Exposed	121	121	113	121	116	104	121	110	97	117	103	91	112	96	85	105	91	80	98	86	68	87	73	51	75	56	39	57	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	120	120	108	120	118	100	120	112	93	120	105	87	119	99	82	114	93	73	108	88	63	97	79	49	88	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	118	99	82	113	92	70	105	86	59	99	81	50	93	70	43	87	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	120	120	106	120	117	98	120	111	91	120	103	84	119	97	77	114	91	64	107	85	55	95	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	119	96	76	112	89	62	104	83	51	97	72	42	90	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	121	121	119	121	121	113	121	117	105	121	111	97	121	103	91	121	97	85	119	91	80	110	81	58	99	61	44	90	47	35	83	37	30	70	32	40	58	29	36
			Exposed	121	103	91	121	95	84	117	88	74	111	82	60	104	72	50	98	60	43	93	51	36	83	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	121	121	121	121	121	119	121	121	114	121	118	107	121	121	113	121	119	100	120	106	94	115	100	88	103	90	78	93	81	59	84	66	46	70	53	37	55	43	32
			Exposed	121	113	99	119	105	92	113	97	86	105	91	80	98	86	68	92	81	57	86	71	49	71	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	110	111	111	104	111	111	93	111	102	84	111	93	72	105	85	58	97	78	48	90	65	40
			Exposed	111	111	111	111	111	109	111	111	111	111	111	95	111	107	89	111	101	84	111	95	77	105	86	59	95	76	47	87	61	37	80	50	32	66	42	43	56	35	38
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	109	112	112	102	112	112	91	112	100	82	112	90	64	103	82	50	94	68	40	87	55	34
			Exposed	112	112	112	112	112	107	112	112	99	112	112	92	112	106	86	112	99	81	112	93	69	104	83	51	93	66	39	84	51	33	72	40	43	56	34	38	45	30	34
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	105	117	107	94	117	97	85	117	88	72	109	81	57	101	64	46
			Exposed	117	117	117	117	117	117	117	117	114	117	117	107	117	113	99	117	106	93	117	100	87	117	88	74	108	79	55	98	59	42	90	46	34	83	37	30	71	32	41
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	114	120	115	103	120	106	93	113	97	85	103	89	76	94	83	61
			Exposed	120	120	120	120	120	120	120	120	120	120	120	115	120	119	109	120	115	102	120	109	96	113	98	86	101	88	74	92	81	57	83	65	45	70	53	37	55	44	32
	C	0-7	Interior	111	111	111	111	111	111	111	111	105	111	111	98	111	111	92	111	105	87	111	99	82	109	89	65	99	81	51	90	66	41	83	54	34	72	45	30	60	38	40
			Exposed	111	111	92	111	103	85	111	96	79	111	90	67	104	85	57	98	80	50	93	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	112	112	112	112	112	112	112	112	103	112	112	96	112	110	90	112	103	84	112	97	77	108	86	56	97	73	43	88	56	34	80	44	30	62	36	40	50	32	36
			Exposed	112	110	89	112	101	83	112	94	71	110	87	59	103	82	49	96	71	42	90	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	111	117	116	104	117	111	97	117	104	91	117	92	81	112	83	61	101	66	47	93	51	37	86	41	32	78	34	43
			Exposed	117	116	103	117	109	95	117	100	88	117	93	82	116	87	71	111	82	59	104	72	50	94	52	37	85	40	31	73	33	41	58	29	36	48	38	32	40	34	26
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	118	120	120	113	120	117	106	120	113	100	116	101	89	106	92	81	95	83	63	87	71	50	78	58	40	62	48	34
			Exposed	120	120	113	120	116	104	120	110	97	117	103	91	112	96	85	105	91	80	98	86	68	87	73	51	75	56	39	57	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	111	111	108	111	111	100	111	111	93	111	105	87	111	99	82	111	93	73	108	88	63	97	79	49	88	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	111	99	82	111	92	70	105	86	59	99	81	50	93	70	43	87	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	112	112	106	112	112	98	112	111	91	112	103	84	112	97	77	112	91	64	107	85	55	95	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	112	96	76	112	89	62	104	83	51	97	72	42	90	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	118	118	118	118	118	113	118	117	105	118	111	97	118	103	91	118	97	85	118	91	80	110	81	58	99	61	44	90	47	35	83	37	30	70	32	40	58	29	36
			Exposed	118	103	91	118	95	84	111	88	74	111	82	60	104	72	50	98	60	43	93	51	36	83	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	121	121	121	121	121	119	121	121	114	121	118	107	121	113	100	120	106	94	115	100	88	103	90	78	93	81	59	84	66	46	70	53	37	55	43	32	44	36	43
			Exposed	121	113	99	119	105	92	113	97	86	105	91	80	98	86	68	92	81	57	86	71	49	71	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	96	84	96	93	72	96	85	58	96	78	48	90	65	40
			Exposed	96	96	96	96	96	96	96	96	96	96	96	95	96	96	89	96	96	84	96	95	77	96	86	59	95	76	47	87	61	37	80	50	32	66	42	43	56	35	38
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	91	96	96	82	96	90	64	96	82	50	94	68	40	87	55	34
			Exposed	96	96	96	96	96	96	96	96	96	96	96	92	96	96	86	96	96	81	96	93	69	96	83	51	93	66	39	84	51	33	72	40	43	56	34	38	45	30	34
		20-27	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	105*	106*	106*	94*	106*	97*	85	106*	88	72	106*	81	57	101*	64	46
			Exposed	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	99*	106*	106*	93	106*	100*	87	106*	88	74	106*	79	55	98*	59	42	90	46	34	83	37	30	71	32	41
		27-45	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	93*	101*	97*	86*	101*	89*	76	94*	83	61
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	96*	101*	98*	86*	101*	88*	74	92*	81	57	83	65	45	70	53	37	55	44	32
	C	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	87	96	96	82	96	89	65	96	81	51	90	66	41	83	54	34	72	45	30	60	38	40
			Exposed	96	96	92	96	96	85	96	96	79	96	90	67	96	85	57	96	80	50	93	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	91	96	96	82	96	90	64	96	82	50	94	68	40	87	55	34
			Exposed	96	96	89	96	96	83	96	94	71	96	87	59	96	82	49	96	71	42	90	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	104*	106*	106*	97*	106*	104*	91	106*	92	81	106*	83	61	101*	66	47	93	51	37	86	41	32	78	34	43
			Exposed	106*	106*	103*	106*	106*	95*	106*	100*	88	106*	93	82	106*	87	71	106*	82	59	104*	72	50	94*	52	37	85	40	31	73	33	41	58	29	36	48	38	32	40	34	26
		27-45	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	89*	101*	92*	81	95*	83	63	87*	71	50	78	58	40	62	48	34
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	97*	101*	101*	91*	101*	96*	85*	101*	91*	80	98*	86*	68	87*	73	51	75	56	39	57	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	96	96	96	96	96	96	96	96	93	96	96	87	96	96	82	96	93	73	96	88	63	96	79	49	88	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	96	96	82	96	92	70	96	86	59	96	81	50	93	70	43	87	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	96	96	96	96	96	96	96	96	91	96	96	84	96	96	77	96	91	64	96	85	55	95	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	96	96	76	96	89	62	96	83	51	96	72	42	90	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	105*	111*	111*	97	111*	103*	91	111*	97	85	111*	91	80	110*	81	58	99	61	44	90	47	35	83	37	30	70	32	40	58	29	36
			Exposed	111*	103*	91	111*	95	84	111*	88	74	111*	82	60	104*	72	50	98	60	43	93	51	36	83	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	100*	107*	106*	94*	107*	100*	88	103*	90	78	93*	81	59	84	66	46	70	53	37	55	43	32	44	36	43
			Exposed	107*	107*	99*	107*	105*	92*	107*	97*	86	105*	92*	80	98*	86	68	92*	81	57	86	71	49	71	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28

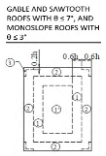
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

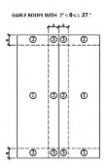
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

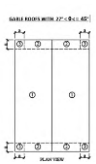
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

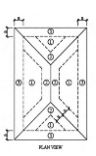












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

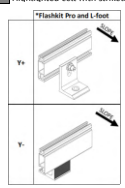
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	72	86	85	58	86	78	48	86	65	40
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	77	86	86	59	86	76	47	86	61	37	80	50	32	66	42	43	56	35	38
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	91*	94*	94*	82	94*	90*	64	94*	82	50	94*	68	40	87*	55	34
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	86*	94*	94*	81	94*	93*	69	94*	83*	51	93*	66	39	84*	51	33	72	40	43	56	34	38	45	30	34			
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	80*	57	80*	57	30	71*	32	41
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	74*	80*	79*	55	80*	59	42	80*	46	34	80*	37	30	71*	32	41		
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	61
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	57	74*	65*	45	70*	53	37	55	44	32
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	65	86	81	51	86	66	41	83	54	34	72	45	30	60	38	40
			Exposed	86	86	86	86	86	85	86	86	79	86	86	67	86	85	57	86	80	50	86	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	94*	94*	84*	94*	94*	77	94*	86*	56	94*	73	43	88*	56	34	80	44	30	62	36	40	50	32	36
			Exposed	94*	94*	89*	94*	94*	83*	94*	94*	71	94*	87*	59	94*	82	49	94*	71	42	90*	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	66	47	80*	51	37	80*	41	32	78*	34	43
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	71*	80*	80*	59	80*	72*	50	80*	52	37	80*	40	31	73*	33	41	58	29	36	48	38	32	40	34	26		
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	63*	74*	71*	50	74*	58	40	62	48	34
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	68*	74*	73*	51	74*	56	39	57	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	73	86	86	63	86	79	49	86	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	86	86	82	86	86	70	86	86	59	86	81	50	86	70	43	86	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	91*	96*	96*	84	96*	96*	77	96*	91*	64	96*	85	55	95*	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	96*	96*	76	96*	86	62	96*	83	51	96*	72	42	86	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	85*	87*	87*	80*	87*	81*	58	87*	61	44	87*	47	35	83*	37	30	70	32	40	58	29	36
			Exposed	87*	87*	87*	87*	87*	84*	87*	87*	74*	87*	82*	60	87*	72	50	87*	60	43	87*	51	36	83*	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78*	81*	81*	78*	81*	66	46	70*	53	37	55	43	32	44	36	43
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	81*	81*	68*	81*	81*	57	81*	71*	49	72*	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	72	83	83	63	83	78	48	83	65	40
			Exposed	83	83	83	83	83	83	83	83	79	83	83	67	83	83	57	83	80	50	83	71	43	83	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	64	76*	76*	50	76*	68*	40	76*	55	34
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	51	76*	66*	39	76*	51	33	72*	40	43
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	46
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	59*	42	62*	46	34	62*	32	41
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	57*	59*	59*	45	59*	53*	37	55*	44	32
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	65	83	81	51	83	66	41	83	54	34	72	45	30	60	38	40
			Exposed	83	83	83	83	83	83	83	83	79	83	83	67	83	83	57	83	80	50	83	71	43	83	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	56	76*	76*	56	76*	73*	43	76*	56	36
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	71*	76*	76*	59	76*	76*	49	76*	71*	42	76*	61	36	76*	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	47	62*	51	37	62*	41	32	62*	34	43
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	60	62*	62*	59*	62*	62*	50	62*	52	37	62*	40	31	62*	33	41	58*	29	36	48	38	32	40	34	26
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	49	85	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	51*	59*	56*	39	57*	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	73	85	85	63	85	79	49	85	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	85	85	82	85	85	70	85	85	59	85	81	50	85	70	43	85	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	77*	84*	84*	64	84*	84*	55	84*	69	41	84*	52	33	73*	41	29	56	34	38	45	30	33	37	40	30
			Exposed	84*	84*	76*	84*	84*	62	84*	83*	51	84*	72*	42	84*	60	36	84*	51	33	79*	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	58*	68*	61*	44	68*	47	35	68*	37	30	68*	32	40	58*	29	36
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60*	68*	68*	50	68*	60*	43	68*	51	36	68*	38	31	68*	38	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	59*	64*	64*	46	64*	53	37	55*	43	32
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	58*	64*	64*	49	64*	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	77	77	58	77	77	48	77	65	40
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	59	77	76	47	77	61	37	77	50	32
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	50	62*	62*	40	62*	55*	34
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	40	43	56*	34	38	45	30	34
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	42	51*	46*	34	51*	37	30	51*	32	41
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	48*	37	48*	44*	32
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	65	77	77	41	77	66	41	77	54	34	72	45	30	60	38	40
			Exposed	77	77	77	77	77	77	77	77	77	77	77	67	77	77	57	77	77	50	77	71	43	77	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	56*	62*	62*	44	30	62*	36	40
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59*	62*	62*	49	62*	62*	42	62*	61*	36	62*	45	30	60*	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	41	32	51*	34	43
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	37	51*	51*	41	51*	39	36	48*	40	32	48*	34	23
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*	48*	48*	34
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	34
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	73	80	80	63	80	79	49	80	63	38	80	51	32	66	42	43	55	35	38	46	31	34
			Exposed	80	80	80	80	80	70	80	80	59	80	80	50	80	70	43	80	61	38	80	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	55	68*	68*	41	68*	52	33	68*	41	29	56	34	38	45	30	33	37	40	30
			Exposed	68*	68*	68*	68*	68*	62*	68*	68*	51	68*	68*	42	68*	60*	36	68*	51	33	68*	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	44	56*	47	35	56*	37	30	56*	32	40	56*	29	36
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	56*	43	56*	51	36	56*	38	31	56*	38	32	40	54*	41	34	44	36	30	36	32	40	36	24
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	53*	37	53*	43	32	44	36	43
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	38	53*	42	32	41	34	41	34	30	36	30	40	32	40	36	28

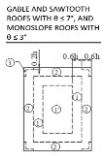
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

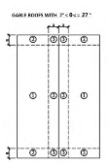
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

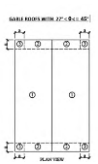
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

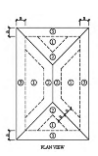












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

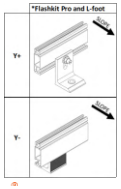
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	70	70	48	70	65	40
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	59	70	70	47	70	61	37	70	50	32	66	42	43	56	35	38
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	40	53*	53*	53*	45*	30	34
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	39	53*	51*	33	53*	40	43	53*	34	38	45*	30	34
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	34	43*	37*	30	43*	32	41
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	41*	41*	41*	32
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	51	70	66	41	70	54	34	70	45	30	60	38	40
			Exposed	70	70	70	70	70	70	70	70	70	70	70	67	70	70	57	70	70	50	70	70	43	70	70	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	43	53*	53*	34	53*	44	30	53*	36	40	50*	32	36
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	42	53*	53*	36	53*	45*	30	53*	45*	30	53*	45*	30	53*	40	30	32	35	39	46*	30	43	31	23
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	41*	32	43*	34	43
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	31	43*	29	36	43*	38	32	40*	34	26
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	34
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	33	41*	36*	29	36*	32	38	32	43	34				
70	B	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	63	74	74	49	74	63	38	74	51	32	66	42	43	55	35	38	46	31	34
			Exposed	74	74	74	74	74	70	74	74	59	74	74	50	74	70	43	74	61	38	74	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	41	58*	52*	33	58*	41	29	56*	34	38*	45	30	33	37	40	30
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	51*	58*	58*	42	58*	58*	36	58*	51*	33	58*	44	30	57*	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	47*	35	48*	37	30	48*	32	40	48*	29	36
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	48*	36	48*	38	31	48*	32	40	48*	41	34	44*	36	30	36	32	27	32	28	24
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	43*	32	44*	36	43
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	42*	32	41*	34	41	34	30	36	30	40	32	40	36	28
	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	58	65	65	65	48	65	65	40
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	47	65	61	37	65	59	32	65	42	43	56	35	38
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	34
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	33	45*	45*	40*	43	45*	34	38	45*	30	34
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	38*	30	38*	32*	41
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	51	65	65	41	65	54	34	65	45	30	60	38	40
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	50	65	65	43	65	55	34	65	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	45*	45*	45*	36
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	36	45*	45*	30	45*	35	39	45*	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	31	38*	33*	41
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	29	36	38*	32	38*	34	26
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	35*	32*	38	32*	43	34
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	69	69	49	69	63	38	69	51	32	66	42	43	55	35	38	46	31	34
			Exposed	69	69	69	69	69	69	69	69	59	69	69	50	69	69	43	69	61	38	69	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41	50*	50*	33	50*	41	29	50*	34	38	45*	30	33	37	40	30
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	42	50*	50*	36	50*	50*	33	50*	44*	30	50*	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	35	41*	37*	30	41*	32	40	41*	29	36
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40	41*	41*	34	41*	36*	30	36*	32	27	32	28	24
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	39*	39*	32	39*	36*	43
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	38*	39*	39*	32	39*	34*	41	34*	30	36	30	40	32	40	36	28
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	48	61	61	40
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	37	61	61	37	61	50	32	61	42	43	56	35	38
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	34*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	33	40*	40*	43	40*	34*	38	40*	30	34
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	30*	33*	32*	41
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	54	61	61	45	60	38	40
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	50	61	61	43	61	55	34	61	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	30	40*	35*	39	40*	30	34	37*	40	30	32	35	26	43	31	23
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	33*	41	33*	29*	36	33*	33*	38	32	33*	34	28			
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	29*	32*	32*	38	32*	43*	34
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	49	65	63	38	65	51	32	65	42	43	55	35	38	46	31	34
			Exposed	65	65	65	65	65	65	59	65	65	50	65	65	43	65	61	38	65	54	34	65	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22			
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	33	44*	41*	29	44*	34	38	44*	30	33	37	40	30
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	44*	44*	36	44*	44*	33	44*	44*	30	44*	34	38	43*	29	33	35	38	28	30	34	25	40	30	22	36	26	20			
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*	37*	37*	30	37*	32*	40	37*	29	36
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	36*	37*	37*	31	37*	32*	40	37*	41	34	37*	41	34	36*	30	36*	32	27	32	28	24
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	35*	43
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	34*	41	34*	30*	36	30*	40	32	40	36	28

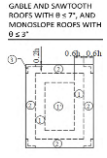
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

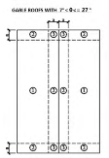
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

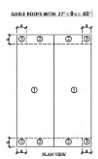
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

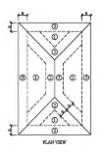












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

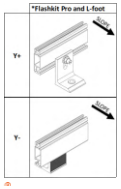
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	40
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	47	58	58	37	58	50	32	58	42	43	56	35	38
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	43	36*	34*	38	36*	30	34
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	41	58	54	34	58	45	30	58	38	40
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	50	58	58	43	58	55	34	58	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	30	36*	36*	40	36*	32*	36
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	30	36*	35*	39	36*	30	34	36*	40	30	32*	35	26	43	31	23
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	43*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	43*	36	45*	38*	32	45*	34	28
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	38*	43*	43*	34
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	49	61	51	32	61	42	43	55	35	38	46	31	34			
			Exposed	61	61	61	61	61	61	61	61	59	61	61	50	61	61	43	61	61	38	61	54	34	61	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33	40*	40*	29	40*	34*	38	40*	30	33	37*	40	30
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	33	40*	40*	30	40*	34*	38	40*	29	33	35*	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	32*	30*	33*	32*	40	33*	29*	36		
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	32*	40	33*	41	34	33*	36	30	33*	32	27	32*	28	24
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	46*	36	45*	40*	32	40*	36	28
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	48	55	55	40
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	47	55	55	38
		7-20	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	43*	32*	32*	38	32*	30*	34
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	41	55	54	34	55	45	30	55	38	40
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	43	55	55	34	55	44	29	55	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	30*	32*	32*	39	32*	30*	34	32*	40	30	32*	35	26	43*	31	23
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	38*	32	40*	34	28
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	38*	39*	39*	34*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	49	58	58	38	58	51	32	58	42	43	55	35	38	46	31	34
			Exposed	58	58	58	58	58	58	58	58	58	58	58	50	58	58	43	58	58	38	58	54	34	58	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	36*	34*	38	36*	30	33	36*	40	30
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	30	36*	34*	38	36*	29	33	35*	38	28	30	34	25	40	30	20
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	43*	36
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	41*	34	45*	45*	36	45*	40*	32	45*	28	24
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36	43*	40*	32	40*	36	28

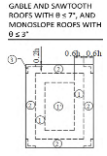
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

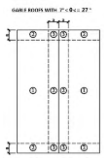
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

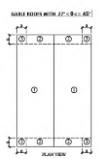
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

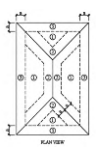












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

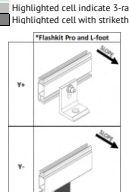
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	145	149	149	133	149	141	123	104	135	116	94	128	108	85
			Exposed	149	149	149	149	149	149	149	149	142	149	149	135	149	146	128	149	140	123	149	134	117	145	124	105	134	115	92	125	105	82	118	95	63	110	86	56	100	77	84
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	135	149	146	123	149	134	114	149	124	100	140	116	88	130	105	75
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	129	149	145	122	149	137	117	149	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	143	128	150	132	119	150	122	108	142	115	96
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	150	139	150	147	132	150	132	120	150	121	106	139	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	149	136	151	138	127	151	130	119	141	122	110
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	140	151	151	140	151	139	127	151	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	C	0-7	Interior	149	149	149	149	149	149	149	149	146	149	149	139	149	149	132	149	144	126	149	137	121	149	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	149	149	132	149	142	124	149	135	118	149	128	112	143	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	133	149	149	126	149	142	120	149	129	107	143	118	92	131	106	80	121	93	59	113	83	52	100	62	83
			Exposed	149	149	133	149	147	125	149	138	117	149	130	109	149	123	99	142	117	91	134	111	83	122	94	60	111	82	51	96	60	76	85	52	59	63	82	52	56	62	46
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	144	150	150	136	150	137	123	150	125	113	143	115	97	133	102	85	125	90	63	118	80	56
			Exposed	150	150	150	150	150	150	142	150	148	133	150	139	125	150	131	118	150	124	112	146	118	101	134	103	86	124	88	62	116	65	54	105	57	84	94	50	62	85	78	56
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	143	131	151	132	121	142	123	112	131	115	98	122	105	88	114	95	75
			Exposed	151	151	151	151	151	150	151	151	141	151	145	133	151	138	126	151	131	120	146	126	115	132	116	99	120	103	86	109	91	64	95	82	56	84	63	87	62	56	72
	D	0-7	Interior	149	149	149	149	149	141	149	149	133	149	144	126	149	137	121	149	131	115	148	126	109	136	117	94	126	106	84	118	95	64	110	86	56	99	75	84	91	62	68
			Exposed	149	137	120	149	130	114	144	124	105	137	118	96	131	113	89	126	105	83	120	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	149	149	149	149	149	144	149	149	135	149	149	127	149	142	120	149	134	114	149	127	105	141	116	89	128	102	65	118	89	56	107	72	87	94	59	68	84	52	58
			Exposed	149	141	120	149	132	113	149	124	101	143	118	91	134	111	83	127	101	64	121	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	145	150	150	136	150	143	129	150	136	122	150	123	110	140	113	93	130	97	81	122	85	60	115	63	53	104	56	84
			Exposed	150	150	136	150	141	127	150	132	119	150	125	112	146	118	101	139	111	92	133	101	85	122	86	60	114	62	52	101	54	81	90	84	59	81	63	52	63	56	47
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	144	151	151	144	151	151	136	151	151	130	151	131	119	139	121	108	127	112	94	118	100	84	107	90	63	94	82	56
			Exposed	151	151	144	151	147	135	151	139	127	151	132	121	146	126	115	138	120	106	131	115	98	119	101	84	105	88	62	90	74	54	72	59	83	58	52	63	52	81	56
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
			Exposed	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	135	140	140	123	140	134	114	140	124	100	140	116	88	130	105	75
			Exposed	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
			Exposed	140	140	140	140	140	132	140	140	120	140	140	118	91	134	111	83	127	101	64	121	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	145	147	147	136	147	143	129	147	136	122	147	123	110	140	113	93	130	97	81	122	85	60	115	63	53	104	56	84
			Exposed	147	147	136	147	141	127	147	132	119	147	125	112	146	118	101	139	111	92	133	101	85	122	86	60	114	62	52	101	54	81	90	84	59	81	63	52	63	56	47
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	149	137	151	142	130	151	130	119	139	121	108	127	112	94	118	100	84	107	90	63	94	82	56
			Exposed	151	151	144	151	147	135	151	139	127	151	132	121	146	126	115	138	120	106	131	115	98	119	101	84	105	88	62	90	74	54	72	59	83	58	52	63	52	81	56
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	115	126	123	104	126	116	94	126	108	85
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	117	126	124	105	126	115	92	125	105	82	118	95	63	110	86	56	100	77	84
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	114	127	124	100	127	116	88	127	105	75
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	125	101	127	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	132	135	132	120	135	121	106	135	111	92
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	132	135	132	120	135	121	106	135	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	138	127	140	130	119	139	122	110
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	139	127	140	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	110	126	118	97	126	109	86	121	99	70	114	90	59	104	82	52
			Exposed	126	126	126	126	126	124	126	126	118	126	126	112	126	123	103	126	118	96	126	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	107	127	127	120	127	127	107	127	127	93	127	113	83	127	100	62
			Exposed	127	127	127	127	127	117	127	127	109	127	123	99	127	117	91	127	111	83	122	94	60	111	82	51	96	60	76	85	52	59	63	82	52	56	62	46	100	62	83
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	123	135	125	113	135	115	97	133	102	85	125	90	63	118	80	56
			Exposed	135	135	135	135	135	135	135	135	133	135	135	125	135	131	118	135	124	112	135	118	101	134	103	86	124	88	62	116	65	54	105	57	84	94	50	62	85	78	56
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	131	140	132	121	139	123	112	131	115	98	122	105	88	114	95	75
			Exposed	140	140	140	140	140	140	140	140	140	140	140	133	140	138	126	140	131	120	140	126	115	132	116	99	120	103	86	109	91	64	95	82	56	84	63	87	62	56	72
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	115	126	126	109	126	117	94	126	106	84	118	95	64	110	86	56	99	75	84	91	62	68
			Exposed	126	126	120	126	126	114	126	124	105	126	118	96	126	113	89	126	105	83	120	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	114	127	127	105	127	116	89	127	102	65	118	89	56	107	72	87	94	59	68	84	52	58
			Exposed	127	127	120	127	127	113	127	124	101	127	118	91	127	111	83	127	101	64	121	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	136	137	137	129	137	136	122	137	123	110	137	113	93	130	97	81	122	85	60	115	63	53	104	56	84
			Exposed	137	137	136	137	137	127	137	132	119	137	125	112	137	118	101	137	111	92	133	101	85	122	86	60	114	62	52	101	54	81	90	84	59	81	63	52	63	56	47
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	137	142	142	130	142	130	119	139	121	108	127	112	94	118	100	84	107	90	63	94	82	56
			Exposed	142	142	142	142	142	142	142	139	127	142	132	121	142	126	115	138	120	106	131	115	98	119	101	84	105	88	62	90	74	54	72	59	83	58	52	63	52	81	56

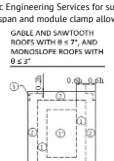
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

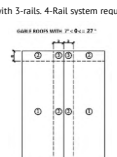
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

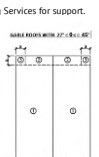
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

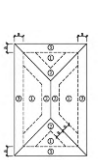












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

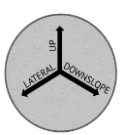
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

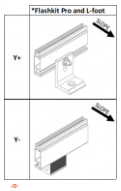
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	104	117	116	94	117	108	85			
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	105	117	115	92	117	105	82	117	95	63	110	86	56	100	77	84			
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	114	118	118	100	118	116	88	118	105	75						
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	101	118	115	87	118	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	122	108	127	115	96			
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	85	60	115	64	53			
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	119	122*	122*	110			
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	120	106	122*	111	93	118	100	84	108	90	64
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	86	117	99	70	114	90	59	104	82	52
			Exposed	117	117	117	117	117	117	117	117	117	112	117	117	103	117	117	96	117	113	89	117	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52			
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	80	118	93	59	113	83	52	100	62	83
			Exposed	118	118	118	118	118	118	118	118	117	118	109	118	118	99	118	117	91	118	111	83	118	94	60	111	82	51	96	60	76	85	52	59	63	82	52	56	62	46	
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	125	113	127	115	97	127	102	85	125	90	63	118	80	56
			Exposed	127	127	127	127	127	127	127	127	127	125	127	127	118	127	124	112	127	118	101	127	103	86	124	88	62	116	65	54	105	57	84	94	50	62	85	78	56			
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	112	122*	115	98	122*	105	88	114	95	75
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	115	122*	116	99	121*	103	86	109	91	64	95	82	56	84	63	87	62	56	72
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	94	117	106	84	117	95	64	110	86	56	99	75	84	91	62	68			
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	105	118	116	89	118	102	65	118	89	56	107	72	87	94	59	68	84	52	58
			Exposed	118	118	118	118	118	113	118	118	101	118	118	91	118	111	83	118	101	64	118	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	99
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	122	129	123	110	129	103	93	129	97	81	122	85	60	115	63	53	104	56	84	
			Exposed	129	129	129	129	129	127	129	129	119	129	125	112	129	118	101	129	111	92	129	101	85	122	86	60	114	62	52	101	54	81	90	84	59	81	63	52	63	56	47
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	121	119	127	121	108	127	112	94	118	100	84	107	90	63	94	82	56
			Exposed	127	127	127	127	127	127	127	127	127	121	127	126	115	127	120	106	127	115	98	119	101	84	105	88	62	90	74	54	72	59	83	58	52	63	52	81	56			
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	104	115	115	94	115	108	85			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	105	82	115	95	63	110	86	56	100	77	84
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	88	115	105	75			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	101	115	115	87	115	100	64	115	88	56	107	72	87	95	59	71
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	108*	113*	113*	96			
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	111*	92	113*	96	81	113*	85	60	113*	64	53
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	106*	109*	109*	109*	109*	109*	106*	109*	109*	93	109*	100*	84	108*	90	64
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	97	115	109	86	115	99	70	114	90	59	104	82	52
			Exposed	115	115	115	115	115	115	115	115	115	112	115	115	103	115	115	96	115	113	89	115	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52			
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	92	115	106	80	115	93	59	113	83	52	100	62	83
			Exposed	115	115	115	115	115	115	115	115	115	109	115	115	99	115	115	91	115	111	83	115	94	60	111	82	51	96	60	76	85	52	59	63	82	52	56	62	46			
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	97	113*	102*	85	113*	90	63
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	112*	113*	113*	101	113*	103*	86	113*	88	62	113*	65	54	105*	57	84	94	50	62	85	78	56			
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	95	109*	105*	88	109*	95	75
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	99*	109*	103*	86	109*	91	64	95	82	56	84	63	87	62	56	72
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	94	117	106	84	117	95	64	110	86	56	99	75	84	91	62	68			
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	107	117	117	94	117	102	65	117	89	56	107	72	87	94	59	68	84	52	58			
			Exposed	117	117	117	117	117	113	117	117	101	117	117	91	117	111	83	117	101	64	117	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	99
		20-27	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	110	118*	113*	93	118*	97	81	118*	85	60	115*	63	53	104	56	84
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	112*	118*	118*	101	118*	111	92	118*	101	85	118*	86	60	114*	62	52	101	54	81	90	84	59	81	63	52	63	56	47			
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	108*	114*	112*	94	114*	100	84	107*	90	63	94	82	56
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	101	84	105*	88	62	90	74	54	72	59	83	58	52	63	52	81	56			
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	107	107	94	107	107	85			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	105	107	107	92	107	105	82	107	95	63	107	86	56	100	77	84			
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	100	112*	112*	88	112*	105*	75			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	101	112*	112*	87	112*	100	64	112*	88	56	107*	72	87	95	59	71
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	96*			
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	92*	100*	96*	81	100*	85*	60	100*	64	53
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	84*	94*	90*	64
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	107	107	94	107	107	85			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	103	107	107	96	107	107	89	107	99	73	107	89	58	101	79	85	91	62	68	83	55	59	68	82	52			
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	92	112*	106*	80	112*	93	59	111*	83	52	100	62	83
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	112*	99	112*	112*	91	112*	111*	83	112*	94	60	111*	82	51	96	60	76	85	52	59	63	82	52	56	62	46			
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	85*	100*	90*	63	100*	80	56
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	86*	100*	88*	62	100*	65	54	100*	57	84	94*	50	62	85*	78	56
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	88*	94*	94*	75			
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	86*	94*	91*	64	94*	82*	56	94*	84*	72			
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	109	111	111	94	111	106	84	111	95	64	110	86	56	99	75	84	91	62	68
			Exposed	111	111	111	111	111	111	111	105	111	111	96	111	111	89	111	105	83	111	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44	
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	105	115*	115*	89	115*	102	65	115*	89	56	107	72	87	94	59	68	84	52	58
			Exposed	115*	115*	115*	115*	115*	113*	115*	115*	101	115*	115*	91	115*	111	83	115*	101	64	115*	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	99
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	93*	107*	97*	81	107*	85	60	107*	63	53	104*	56	84
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	101*	107*	107*	92*	107*	107*	85	107*	86	60	107*	62	52	101*	54	81	90	84	59	81	63	52	63	56	47			
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	94*	103*	100*	84	103*	90*	63	94*	82	56
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	98*	103*	101*	84	103*	89*	62	90*	74	54	72	59	83	58	52	63	52	81	56			

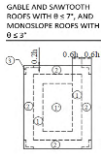
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

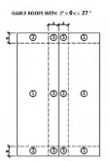
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

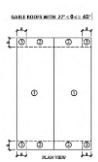
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

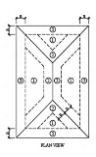












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

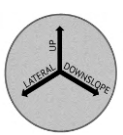
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

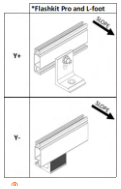
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	94	98	98	85
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	92	98	98	82	98	95	63	98	86	56	98	77	84
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	100*	102*	102*	88*	102*	102*	75
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	101*	102*	102*	87*	102*	100*	64	102*	88*	56	102*	72	87	95*	59	71
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	81*	85*	85*	60	85*	85*	64	53		
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	64
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	86	98	98	70	98	90	59	98	82	52
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	89	98	98	79	85	91	62	68	83	55	59	68	82	52		
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	92*	102*	102*	80	102*	93*	59	102*	83	52	100*	62	83
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	99*	102*	102*	91*	102*	102*	83	102*	94*	60	102*	82	51	96*	60	76	85	52	59	63	82	52	56	62	46
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	63	85*	80*	56
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	65	54	85*	85*	57	84	85*	50	62	85*	78	56
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	75*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	64	80*	80*	56	80*	63	87	62	56	72
70	B	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	94	103	103	84	103	95	64	103	86	56	99	75	84	91	62	68
			Exposed	103	103	103	103	103	103	103	103	103	103	103	96	103	103	89	103	103	83	103	98	69	103	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	105*	109*	109*	89	109*	102*	65	109*	89	56	107*	72	87	94	59	68	84	52	58
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	101*	109*	109*	91	109*	109*	83	109*	101*	64	109*	93	59	108*	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	81*	93*	85*	60	93*	63	53	93*	56	84
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	92*	93*	93*	85*	93*	86*	60	93*	62	52	93*	54	81	90*	84	59	81*	63	52	63	56	47
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	62	88*	75*	54
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	62	88*	75*	54	75*	59	83	58	52	63	52	81	56
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	88*	89*	89*	75*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	87*	89*	89*	56	89*	72	87	89*	59	71
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	64	53
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	86	91	91	70	91	90	59	91	82	52
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	73	91	89	58	91	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	80*	89*	89*	59	89*	83*	52	89*	62	83
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	83*	89*	89*	60	89*	82*	51	89*	60	76	85*	52	59	63	82	52	56	62	46
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	63*	73*	73*	56
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	62*	73*	65*	54	73*	57	84	73*	50	62	73*	78	56
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*	70*	70*	56	70*	63*	87	62*	56	72
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	84	96	95	64	96	86	56	96	75	84	91	62	68
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	96	83	96	96	69	96	87	56	96	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	65	98*	89*	56	98*	72	87	94*	59	68	84*	52	58
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	91*	98*	98*	83*	98*	98*	64	98*	93*	59	98*	77	88	93*	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	60	81*	63	53	81*	56	84
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	60	81*	62	52	81*	54	81
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	63	77*	77*	56
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	74*	54	72*	59	83	58	52	63	52	81	56
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	63	86	86	86	86	77	84
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	75*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	71
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	53
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	70	86	86	59	86	82	52
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	73	86	86	58	86	79	85	86	62	68	83	55	59	68	82	52
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	59	78*	78*	52	78*	62	83
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	60	78*	78*	51	78*	60	76	78*	52	59	63	82	52	56	62	46
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	56*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	54	65*	57	84*	65*	50	62	65*	78	56
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	56*	72
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	84	90	90	64	90	86	56	90	75	84	90	62	68
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	90	69	90	87	56	90	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	65	86*	86*	56	86*	72	87	86*	59	68	84*	52	58
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	83*	86*	86*	64	86*	86*	59	86*	77*	88	86*	58	65	81*	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	60	72*	62*	52	72*	54	81
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62*	68*	68*	54	68*	59*	83	58*	52	63	52	81	56

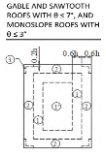
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

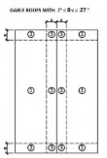
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

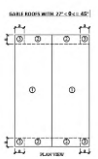
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

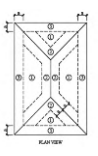












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

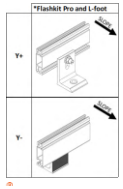
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	63	81	81	56	81	77	84		
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*	70*	70*	56	70*	70*	87	70*	59	71
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
		27-45	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	70	81	81	59	81	81	52		
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	73	81	81	58	81	79	85	81	62	68	81	55	59	68	82	52
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	59	70*	70*	52	70*	62*	83		
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	60*	70*	70*	51	70*	60*	76	70*	52	59	63*	82	52	56	62	46
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*	87*	87*	63	87*	78*	56		
		27-45	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	64	85	85	56	85	75	84	85	62	68
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	83	85	85	69	85	85	56	85	72	83	85	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	65	77*	77*	56	77*	72*	87	77*	59	68	77*	52	58
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	64	77*	77*	59	77*	77*	88	77*	58	65	77*	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	63*	53	64*	56*	84*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	62*	52	64*	54	81	64*	84*	59	64*	63	52	63*	56	47
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	83*	91*	89*	63	91*	81*	56
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	84
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	56*	63*	63*	63*	63*	59*	71
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	70	77	77	59	77	77	52		
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	77	58	77	77	85	77	62	68	77	55	59	68	82	52
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	59*	63*	63*	52	63*	62*	83*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	51	63*	60*	76	63*	52	59	63*	82*	52	56*	62	46
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	63	79*	78*	56
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	64	81	81	56	81	75	84	81	62	68
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	69	81	81	56	81	72	83	81	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	70*	56	70*	70*	87	70*	59	68	70*	52	58
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*	70*	70*	59	70*	70*	88	70*	58	65	70*	88	56	60*	69	49	53	58	49	83	52	39
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	85*	59	87*	63	52	87*	56	47
		27-45	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	63	83*	81*	56

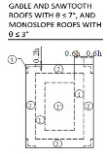
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

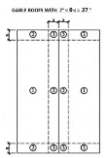
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

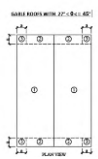
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

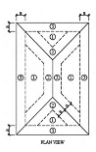












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

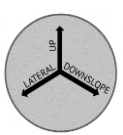
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

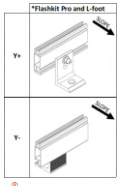
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	120	127	127	114	127	121	100	127	112	90	122	100	82	115	92	70	105	85	57	96	78	48
			Exposed	127	127	125	127	127	118	127	127	111	127	122	101	127	117	95	127	111	90	125	103	85	115	92	71	103	84	56	94	73	45	86	60	39	80	50	34	67	42	30
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	126	127	127	119	127	127	113	127	121	96	127	109	87	123	96	77	114	88	60	100	81	48	92	66	41
			Exposed	127	127	125	127	127	117	127	127	108	127	123	98	127	116	91	127	108	86	127	99	81	115	88	61	99	79	47	90	61	39	82	48	34	67	40	30	54	36	40
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	116	126	117	99	126	103	90	126	93	82	119	86	68	110	77	55			
			Exposed	126	126	126	126	126	126	126	126	125	126	126	117	126	123	108	126	117	99	126	109	93	126	94	83	117	85	66	106	71	51	96	56	41	88	45	36	82	39	32
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	114	121*	116	99	121*	105	91	114	95	84	100	88	74			
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	113	121*	119*	103	121*	106	92	112	94	83	97	86	68	88	78	54	81	63	44	66	53	39
	C	0-7	Interior	127	127	127	127	127	121	127	127	115	127	126	106	127	120	98	127	115	93	127	108	88	118	96	77	108	87	61	97	79	49	89	65	41	83	54	36	72	46	32
			Exposed	127	120	98	127	113	91	126	104	85	120	97	80	114	91	69	107	86	59	99	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	127	127	127	127	127	121	127	127	114	127	127	102	127	120	95	127	114	89	127	104	84	119	92	67	104	83	51	93	67	41	85	53	36	75	43	32	60	38	43
			Exposed	127	120	95	127	111	88	127	100	82	120	93	70	114	87	59	103	82	50	96	72	43	86	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	121	126	126	114	126	120	104	126	114	96	126	97	86	121	88	73	112	79	56	99	61	44	91	49	38	85	41	34
			Exposed	126	126	114	126	126	119	101	126	110	94	126	99	87	126	93	82	120	87	71	115	82	60	100	63	45	90	48	38	83	39	33	70	34	43	57	30	38	48	41	34
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	116	121*	121*	109	121*	111	95	116	98	86	101	89	75	92	82	60	84	69	48	74	57	41
			Exposed	121*	121*	121*	121*	121*	115	121*	119*	105	121*	113	96	121*	104	90	115	97	85	106	92	80	92	82	61	83	67	47	68	54	39	53	44	34	42	38	30	38	34	41
	D	0-7	Interior	127	127	117	127	127	109	127	121	99	127	115	93	127	108	88	123	100	83	118	95	75	105	85	58	95	75	46	87	61	39	79	50	34	66	42	30	55	37	40
			Exposed	127	107	87	121	99	81	115	92	70	107	87	60	99	82	52	94	73	45	89	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	127	127	116	127	127	105	127	121	96	127	114	90	127	104	84	124	96	77	118	91	66	101	81	49	91	63	40	82	49	34	67	40	30	54	36	40	44	32	36
			Exposed	127	103	84	122	95	74	115	88	61	104	82	51	96	72	43	90	61	39	85	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	126	126	126	126	126	123	126	126	116	126	121	105	126	114	96	126	104	90	126	96	85	119	86	69	108	73	52	96	56	41	88	45	36	82	39	32	69	34	43
			Exposed	126	114	96	126	101	89	126	94	83	120	87	72	115	82	60	107	72	51	99	61	44	89	45	37	81	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117	121*	121*	109	121*	116	100	121*	110	94	114	96	84	98	87	70	89	79	55	81	63	44	65	52	38	53	43	34
			Exposed	121*	121*	109	121*	115	98	121*	106	91	116	97	86	106	92	80	97	86	69	91	82	59	82	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	114	119	119	100	119	119	92	119	100	82	115	92	70	105	85	57	96	78	48
			Exposed	119	119	119	119	119	118	119	119	119	119	119	101	119	117	95	119	111	90	119	103	85	115	92	71	103	84	56	94	73	45	86	60	39	80	50	34	67	42	30
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	113	119	119	96	119	109	87	119	96	77	114	88	60	100	81	48	92	66	41
			Exposed	119	119	119	119	119	117	119	119	108	119	119	98	119	116	91	119	108	86	119	99	81	115	88	61	99	79	47	90	61	39	82	48	34	67	40	30	54	36	40
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	116	124	117	99	124	103	90	124	93	82	119	86	68	110	77	55
			Exposed	124	124	124	124	124	124	124	124	124	124	124	117	124	123	108	124	117	99	124	109	93	124	94	83	117	85	66	106	71	51	96	56	41	88	45	36	82	39	32
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	114	121*	116	99	121*	105	91	114	95	84	100	88	74			
			Exposed	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	119*	121*	121*	113	121*	119*	103	121*	106	92	112	94	83	97	86	68	88	78	54	81	63	44	66	53	39
	C	0-7	Interior	119	119	119	119	119	119	119	119	115	119	119	106	119	119	98	119	115	93	119	108	88	118	96	77	108	87	61	97	79	49	89	65	41	83	54	36	72	46	32
			Exposed	119	119	98	119	113	91	119	104	85	119	97	80	114	91	69	107	86	59	99	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	119	119	119	119	119	119	119	119	114	119	119	102	119	119	95	119	114	89	119	104	84	119	92	67	104	83	51	93	67	41	85	53	36	75	43	32	60	38	43
			Exposed	119	119	95	119	111	88	119	100	82	119	93	70	114	87	59	103	82	50	96	72	43	86	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	121	124	124	114	124	120	104	124	114	96	124	97	86	121	88	73	112	79	56	99	61	44	91	49	38	85	41	34
			Exposed	124	124	114	124	119	101	124	110	94	124	99	87	124	93	82	120	87	71	115	82	60	100	63	45	90	48	38	83	39	33	70	34	43	57	30	38	48	41	34
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	95	116	98	86	101	89	75	92	82	60	84	69	48	74	57	41
			Exposed	121*	121*	121*	121*	121*	115	121*	119*	105	121*	113	96	121*	104	90	115	97	85	106	92	80	92	82	61	83	67	47	68	54	39	53	44	34	42	38	30	38	34	41
	D	0-7	Interior	119	119	117	119	119	109	119	119	99	119	115	93	119	108	88	119	100	83	118	95	75	105	85	58	95	75	46	87	61	39	79	50	34	66	42	30	55	37	40
			Exposed	119	107	87	119	99	81	115	92	70	107	87	60	99	82	52	94	73	45	89	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	119	119	116	119	119	105	119	119	96	119	114	90	119	104	84	119	96	77	118	91	66	101	81	49	91	63	40	82	49	34	67	40	30	54	36	40	44	32	36
			Exposed	119	103	84	119	95	74	115	88	61	104	82	51	96	72	43	90	61	39	85	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	126	126	126	126	126	123	126	126	116	126	121	105	126	114	96	126	104	90	126	96	85	119	86	69	108	73	52	96	56	41	88	45	36	82	39	32	69	34	43
			Exposed	126	114	96	126	101	89	126	94	83	120	87	72	115	82	60	107	72	51	99	61	44	89	45	37	81	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	121*	117	121*	121*	109	121*	116	100	121*	110	94	114	96	84	98	87	70	89	79	55	81	63	44	65	52	38	53	43	34
			Exposed	121*	121*	109	121*	115	98	121*	106	91	116	97	86	106	92	80	97	86	69	91	82	59	82	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	100	105	105	90	105	100	82	105	92	70	105	85	57	96	78	48
			Exposed	105	105	105	105	105	105	105	105	105	105	105	101	105	105	95	105	105	90	105	103	85	105	92	71	103	84	56	94	73	45	86	60	39	80	50	34	67	42	30
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	96	105	105	87	105	96	77	105	88	60	100	81	48	92	66	41
			Exposed	105	105	105	105	105	105	105	105	105	105	105	98	105	105	91	105	105	86	105	99	81	105	88	61	99	79	47	90	61	39	82	48	34	67	40	30	54	36	40
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	103	117*	117*	99	117*	103	90	117*	93	82	117*	86	68	110	77	55
			Exposed	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	108	117*	117*	99	117*	109	93	117*	94	83	117*	85	66	106	71	51	96	56	41	88	45	36	82	39	32
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	99	112*	105*	91	112*	95	84	100	88	74			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	103*	112*	106*	92	112*	94	83	97	86	68	88	78	54	81	63	44	66	53	39
	C	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	98	105	105	93	105	105	88	105	96	77	105	97	79	97	79	49	89	65	41	83	54	36	72	46	32
			Exposed	105	105	98	105	105	91	105	104	85	105	97	80	105	91	69	105	86	59	99	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	102	105	105	95	105	105	89	105	104	84	105	92	67	104	83	51	93	67	41	85	53	36	75	43	32	60	38	43
			Exposed	105	105	95	105	105	88	105	100	82	105	93	70	105	87	59	103	82	50	96	72	43	86	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	117*	114*	117*	117*	104	117*	117*	96	117*	97	86	117*	88	73	112*	79	56	99	61	44	91	49	38	85	41	34
			Exposed	117*	117*	114*	117*	117*	101	117*	110	94	117*	99	87	117*	93	82	117*	87	71	115*	82	60	100	63	45	90	48	38	83	39	33	70	34	43	57	30	38	48	41	34
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	111*	95	112*	98	86	102*	89	75	92	82	60	84	69	48	74	57	41
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	105*	112*	112*	96	112*	104*	90	112*	97	85	106*	92	80	92	82	61	83	67	47	68	54	39	53	44	34	42	38	30	38	34	41
	D	0-7	Interior	105	105	105	105	105	105	105	105	99	105	105	93	105	105	88	105	100	83	105	95	75	105	85	58	95	75	46	87	61	39	79	50	34	66	42	30	55	37	40
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		7-20	Interior	105	105	105	105	105	105	105	105	96	105	105	90	105	104	84	105	96	77	105	91	66	101	81	49	91	63	40	82	49	34	67	40	30	54	36	40	44	32	36
			Exposed	105	103	84	105	95	74	105	88	61	104	82	51	96	72	43	90	61	39	85	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	117	117	117	117	117	117	117	116	117	117	105	117	114	96	117	104	90	117	96	85	117	86	69	108	73	52	96	56	41	88	45	36	82	39	32	69	34	43
			Exposed	117	114	96	117	101	89	117	94	83	117	87	72	115	82	60	107	72	51	99	61	44	89	45	37	81	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	110*	116*	116*	100	116*	110*	94	114*	96	84	98	87	70	89	79	55	81	63	44	65	52	38	53	43	34
			Exposed	116*	116*	109*	116*	115*	98	116*	106	91	116*	97	86	106	92	80	97	86	69	91	82	59	82	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34

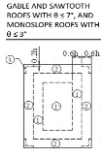
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

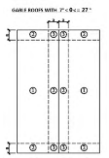
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

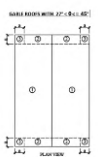
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

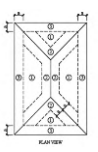












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

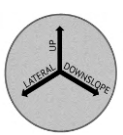
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

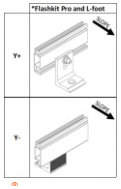
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	82	94	92	70	94	85	57	94	78	48
			Exposed	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	90	94	94	85	94	92	71	94	84	56	94	73	45	86	60	39	80	50	34	67	42	30
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	87	102*	94	77	102*	88	60	100*	81	48	92	66	41
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	91	102*	102*	86	102*	99*	81	102*	88	61	99*	79	47	90	61	39	82	48	34	67	40	30	54	36	40
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	93*	82*	95*	86*	68	95*	77	55			
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	94*	83*	95*	85*	66	95*	71	51	95*	56	41	88*	45	36	82*	39	32
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	84*	89*	88*	74			
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	68	88*	78*	54	81*	63	44	66	53	39			
	C	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	77	94	87	61	94	79	49	89	65	41	83	54	36	72	46	32
			Exposed	94	94	94	94	94	91	94	94	85	94	94	94	80	94	91	69	94	86	59	94	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94	102*	102*	89	102*	102*	84	102*	92	67	102*	83	51	93	67	41	85	53	36	75	43	32	60	38	43
			Exposed	102*	102*	94	102*	102*	88	102*	100*	82	102*	93	70	102*	87	59	102*	82	50	94	72	43	86	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	86*	95*	88*	73	95*	79	56	95*	61	44	91*	49	38	85*	41	34
			Exposed	95*	95*	95*	95*	95*	95*	95*	94*	95*	95*	87*	95*	93*	82*	95*	87*	71	95*	82*	60	95*	63	45	90*	48	38	83*	39	33	70	34	43	57	30	38	48	41	34		
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	86*	89*	89*	76*	89*	82*	60	84*	69	48	75*	57	41
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	82*	61	83*	67	47	68	54	39	53	44	34	42	38	30	38	34	41			
	D	0-7	Interior	94	94	94	94	94	94	94	94	94	93	94	94	88	94	94	83	94	94	75	94	85	58	94	75	46	87	61	39	79	50	34	66	42	30	55	37	40		
			Exposed	94	94	87	94	94	81	94	92	70	94	87	60	94	82	52	94	73	45	89	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	94	94	94	94	94	94	94	94	94	94	90	94	94	84	94	94	77	94	91	66	94	81	49	91	63	40	82	49	34	67	40	30	54	36	44	32	36		
			Exposed	94	94	84	94	94	74	94	88	61	94	82	51	94	72	43	90	61	39	85	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	96*	104*	104*	90*	104*	96*	85	104*	86	69	104*	73	52	96*	56	41	88*	45	36	82	39	32
			Exposed	104*	104*	96*	104*	101*	89*	104*	94*	83	104*	87	72	104*	82	60	104*	72	51	99*	61	44	89*	45	37	81	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	94*	96*	87*	70	89*	79	55	81*	63	44	65	52	38	53	43	34
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	91*	96*	96*	86*	96*	92*	81*	96*	86*	69	91*	82*	59	82*	64	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	82	90	90	70	90	85	57	90	78	48
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	71	90	90	73	90	73	45	86	60	39	80	50	34	67	42	30
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	87*	91*	91*	77*	91*	88*	60	91*	81*	48	91*	66	41
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	81*	91*	88*	61	91*	88*	61	91*	79*	47	90*	61	39	82*	48	34
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	68*	75*	75*	55			
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	66*	75*	71*	51	75*	56	41	75*	45	36	75*	39	32
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*			
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	68*	70*	70*	54	70*	63*	44	66*	53	39
	C	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	88	90	90	77	90	87	61	90	79	49	89	65	41	83	54	36	72	46	32
			Exposed	90	90	90	90	90	90	90	90	85	90	90	80	90	90	69	90	86	59	90	82	52	90	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	89*	91*	91*	84*	91*	91*	67	91*	83*	51	91*	67	41	85*	53	36	75	43	32	60	38	43
			Exposed	91*	91*	91*	91*	91*	88*	91*	91*	82*	91*	91*	70	91*	87*	59	91*	82*	50	91*	72	43	86*	54	36	72	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	56	75*	61	44	75*	49	38	75*	41	34
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	71*	75*	75*	60	75*	63*	45	75*	48	38	75*	39	33	70*	34	43	57	30	38	48	41	34
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	67*	47	68*	54	39
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
	D	0-7	Interior	93	93	93	93	93	93	93	93	93	93	93	93	88	93	93	83	93	93	75	93	85	58	93	75	46	87	61	39	79	50	34	66	42	30	55	37	40		
			Exposed	93	93	87	93	93	81	93	92	70	93	87	60	93	82	52	93	73	45	89	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	96*	97*	97*	90*	97*	97*	84*	97*	96*	77	97*	91*	66	97*	81	49	91*	63	40	82	49	34	67	40	30	54	36	40	44	32	36
			Exposed	97*	97*	84*	97*	95*	74	97*	88*	61	97*	82	51	96*	72	43	90*	61	39	85*	53	36	69	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	69*	82*	73*	52	82*	56	41	82*	45	36	82*	39	32	69*	34	43
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	72*	82*	82*	60	82*	72*	51	82*	61	44	82*	45	37	81*	38	31	65	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	70*	76*	76*	55	76*	63	44	66*	52	38	53	43	34
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	69*	76*	76*	59	76*	65*	45	63	50	38	49	41	33	40	36	43	35	32	38	32	43	34			
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	84	84	70	84	84	57	84	78	48
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	71	84	84	56	84	73	45	84	60	39	80	50	34	67	42	30
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	60	74*	74*	48	74*	66*	41
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	61	74*	74*	51	74*	74*	39	74*	48	34	67*	40	30	54	36	40
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	55*			
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	51	61*	56*	41	61*	45	36	61*	39	32			
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	44	58*	53*	39
	C	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	77	84	84	61	84	79	49	84	65	41	83	54	36	72	46	32
			Exposed	84	84	84	84	84	84	84	84	84	84	84	80	84	84	69	84	84	59	84	82	52	84	66	41	82	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	67*	74*	74*	51	74*	67*	41	74*	53	36	74*	43	32	60	38	43
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	70*	74*	74*	59	74*	74*	50	74*	72*	43	74*	54	36	72*	42	31	56	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	41	34
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	60	61*	61*	48	61*	59	33	61*	34	43	57*	30	38	48	41	34
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49*	58*	57*	41
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	44	58*	53*	39
	D	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	87	87	75	87	85	58	87	75	46	87	61	39	79	50	34	66	42	30	55	37	40
			Exposed	87	87	87	87	87	81	87	87	70	87	87	60	87	82	52	87	73	45	87	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	77*	82*	82*	66	82*	81*	49	82*	63	40	82*	49	34	67	40	30	54	36	40	44	32	36
			Exposed	82*	82*	82*	82*	82*	82*	82*	61	82*	82*	51	82*	72*	43	82*	61	39	82*	53	36	69*	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23	
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	52	67*	56	41	67*	45	36	67*	39	32	67*	34	43
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	60*	67*	67*	51	67*	61*	44	67*	45	37	67*	38	31	65*	33	41	52	43	36	43	38	32	38	34	28
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	55*	63*	63*	44	63*	52	38	53	43	34
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	59*	63*	63*	45	63*	50	38	49	41	33	40	36	43	35	32	38	32	43	34

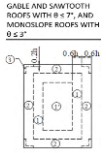
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

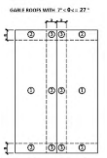
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

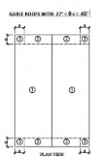
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

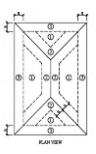












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

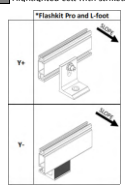
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	70	77	77	57	77	77	48			
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	56	77	73	45	77	60	39	77	50	34	67	42	30
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	48	63*	63*	41			
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	47	63*	61*	39	63*	48	34	63*	40	30	54*	36	40
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	41	52*	45*	36	52*	39	32
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	39		
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	61	77	77	49	77	65	41	77	54	36	72	46	32
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	69	77	77	59	77	77	52	77	66	41	77	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	51	63*	63*	41	63*	53	36	63*	43	32	60*	38	43
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	50	63*	63*	43	63*	54*	36	63*	42	31	56*	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44*	52*	49*	38	52*	41	34
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	45*	52*	39	33	52*	34	43	52*	30	38
		27-45	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	48*	49*	49*	41
			Exposed	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	47*	49*	49*	39	49*	44*	34	43*	38	30	38	34	41
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	75	81	81	58	81	75	46	81	61	39	79	50	34	66	42	30	55	37	40
			Exposed	81	81	81	81	81	81	81	81	70	81	81	60	81	81	52	81	73	45	81	65	40	80	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	66*	69*	69*	49	69*	63*	40	69*	49	34	67*	40	30	54	36	40	44	32	36
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	61*	69*	69*	51	69*	69*	43	69*	61*	39	69*	53	36	69*	41	30	52	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	41	57*	45	36	57*	39	32	57*	34	43
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	51*	57*	57*	44	57*	45	37	57*	38	31	57*	33	41	52*	43	36	43	38	32	38	34	28
		27-45	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	52*	38	53*	43	34
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	45	54*	50*	38	49*	41	33	40	36	43	35	32	38	32	43	34
70	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	57	72	72	48			
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	59	72	72	52	72	66	41	72	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	48*	54*	54*	41
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	47*	54*	54*	40
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	45*	36	45*	39*	32
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	61	72	72	49	72	65	41	72	54	36	72	46	32
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	69	72	72	59	72	72	52	72	66	41	72	53	35	68	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	51*	54*	54*	43
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	50*	54*	54*	43	54*	54*	36	54*	42	31	54*	36	41	44	32	36	38	42	32	34	38	28
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	44*	45*	45*	38	45*	41*	34
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	39*	33	45*	34	43	45*	30	38	45*	41	34
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	34	42*	38*	30	38*	34	41
	D	0-7	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	58	75	75	46	75	61	39	75	50	34	66	42	30	55	37	40
			Exposed	75	75	75	75	75	75	75	75	70	75	75	60	75	75	52	75	73	45	75	65	40	75	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	49	60*	60*	40	60*	49	34	60*	40	30	54*	36	40	44	32	36
			Exposed	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	51*	60*	60*	43	60*	60*	39	60*	53*	36	60*	41	30	52*	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41	50*	45*	36	50*	39	32	50*	34	43
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	45*	50*	38	31	50*	33	41	50*	43	36	43*	38	32	38	34	28
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	38	47*	43*	34
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	38	47*	41*	33	40*	36	43	35	32	38	32	43	34
80	B	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	48		
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	60	39	67	50	34	67	42	30
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	39	48*	48*	34	48*	40	30	48*	36	40
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	39*	32
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
	C	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	49	67	65	41	67	54	36	67	46	32
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	59	67	67	52	67	66	41	67	53	35	67	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	48*	36	48*	42*	31	48*	36	41	44*	32	36	38	42	32	34	38	28
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	34*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	39*	33	40*	34*	43	40*	30	38	40*	41	34
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	38*	30	38*	34*	41
	D	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	58	71	71	46	71	61	39	71	50	34	66	42	30	55	37	40
			Exposed	71	71	71	71	71	71	71	71	70	71	71	60	71	71	52	71	71	45	71	65	40	71	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	40	53*	49*	34	53*	40	30	53*	36	40	44	32	36
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	43	53*	53*	39	53*	53*	36	53*	41	30	52*	35	39	41	30	34	36	40	30	32	35	26	43	31	23
		20-27	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	36	44*	39*	32	44*	34	43
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37	44*	44*	31	44*	33	41	44*	43	36	43*	38*	31	44*	32	38
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	34
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	41*	33	40*	36*	43	36*	32	38	32	43	34

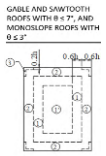
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

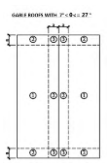
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

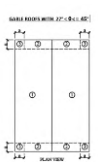
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

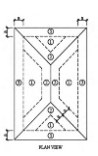












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

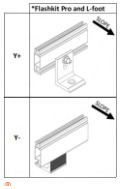
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	57	63	63	48			
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	56	63	63	45	63	60	39	63	50	34	63	42	30
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	34	43*	40*	30	43*	36	40
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
	C	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	61	63	63	49	63	63	41	63	54	36	63	46	32
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	63	63	52	63	63	41	63	53	35	63	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36	43*	43*	32	43*	38*	43
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36	43*	42*	31	43*	36	41	43*	32	36	38*	42	32	34	38	28
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	34*	43	36*	30	38	36*	41	34
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	30*	34*	34*	41
	D	0-7	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	61	39	67	50	34	66	42	30	55	37	40			
			Exposed	67	67	67	67	67	67	67	67	67	67	67	60	67	67	52	67	67	45	67	65	40	67	51	34	64	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	40	47*	47*	34	47*	40	30	47*	36	40	44*	32	36
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*	47*	47*	39	47*	47*	36	47*	41*	30	47*	35	39	41*	30	34	36	40	30	32	35	26	43	31	23			
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	39*	32	39*	34*	43			
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	39*	38*	31	39*	33	41	39*	43	36	39*	38	32	38*	34	28
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	34*
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	36*	43	35*	32*	38	32*	43	34
100	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	48		
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	34	60	42	30
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	34*	39*	39*	30	39*	36*	40
		20-27	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
	C	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	49	60	60	41	60	54	36	60	46	32
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	52	60	60	41	60	53	35	60	43	31	56	38	40	47	33	36	40	29	32
		7-20	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	32	39*	38*	43			
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	36*	39*	39*	31	39*	36*	41	39*	32	36	38*	42	32	34*	38	28
		20-27	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	43*	32*	30*	38	32*	41*	34
		27-45	Interior	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*
			Exposed	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	31*	30*	31*	31*	41*
	D	0-7	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	58	63	61	39	63	50	34	63	42	30	55	37	40			
			Exposed	63	63	63	63	63	63	63	63	63	63	63	60	63	63	52	63	63	45	63	63	40	63	51	34	63	41	44	52	36	39	43	31	34	38	42	30	34	37	26
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	34	43*	40*	30	43*	36	40	43*	32	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	36	43*	41*	30	43*	36	40	43*	30	32	35	26	43	31	23			
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*	36*	34*	43			
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	31	36*	33*	41	36*	43	36	38*	32	36*	34	28		
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	33*	34*	34*	43	34*	32*	38	32*	43	34

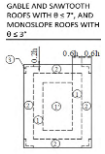
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

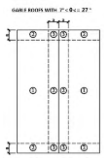
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

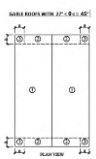
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

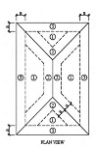












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

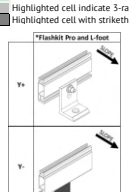
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	135	150	142	125	150	133	116	145	124	106	137	117	95	129	110	87
			Exposed	150	150	150	150	150	150	150	150	144	150	150	136	150	148	130	150	141	124	150	135	119	146	125	107	135	117	94	126	106	84	119	96	65	112	88	57	102	80	51
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	136	151	148	125	151	135	115	151	125	102	142	117	90	132	107	81
			Exposed	151	151	151	151	151	151	151	151	147	151	151	138	151	151	131	151	146	124	151	139	118	151	126	103	140	116	89	129	103	66	119	90	57	110	80	51	97	60	80
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	142	151	145	130	151	133	120	151	124	111	144	116	98
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	151	141	151	149	133	151	134	121	151	123	100	141	113	94	131	99	82	123	87	61	116	86	54
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	150	152	150	138	152	140	128	152	131	120	143	124	113			
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	149	152	152	141	152	141	129	152	130	119	139	121	108	128	113	95	119	102	85	110	92	65
	C	0-7	Interior	150	150	150	150	150	150	150	150	148	150	150	140	150	150	133	150	145	127	150	139	122	150	128	112	139	119	98	130	111	88	122	100	75	115	91	60	106	84	54
			Exposed	150	150	133	150	143	126	150	136	119	150	130	114	145	124	105	138	119	97	132	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	143	151	151	135	151	151	128	151	143	122	151	130	109	145	119	94	133	108	82	123	95	61	115	85	53	103	64	84
			Exposed	151	151	135	151	149	126	151	140	119	151	132	112	151	125	101	144	119	92	136	113	85	124	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	138	151	139	125	151	127	115	145	117	99	135	104	87	126	92	64	119	82	57
			Exposed	151	151	151	151	151	144	151	151	134	151	141	126	151	151	133	151	126	114	148	120	104	136	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	145	133	152	134	122	144	124	114	133	116	100	123	107	90	115	96	81
			Exposed	152	152	152	152	152	151	152	152	142	152	147	134	152	139	128	152	133	122	148	127	116	133	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	150	150	150	150	150	142	150	150	134	150	146	128	150	139	122	150	133	117	149	127	111	137	118	96	127	108	85	119	97	65	112	88	57	101	80	50	92	63	72
			Exposed	150	139	122	150	131	115	146	125	107	139	119	98	132	114	91	127	107	84	122	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	151	151	151	151	151	145	151	151	136	151	151	128	151	143	122	151	136	116	151	129	108	142	118	91	130	104	73	120	91	58	110	80	51	96	60	78	86	53	60
			Exposed	151	143	121	151	134	114	151	126	103	145	119	93	136	113	85	129	103	68	123	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	147	151	151	138	151	145	130	151	137	124	151	125	112	142	114	95	132	99	83	123	87	61	116	65	54	106	58	85
			Exposed	151	151	137	151	143	128	151	134	121	151	126	114	148	120	104	141	114	94	134	104	86	124	88	62	115	64	53	102	55	82	92	86	61	83	64	53	64	57	46
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	151	138	152	144	132	152	132	121	141	122	110	129	114	96	119	102	85	109	91	65	96	83	57
			Exposed	152	152	145	152	149	136	152	140	129	152	133	122	148	127	116	140	121	109	132	116	100	120	103	86	107	90	63	92	80	55	81	61	85	60	54	64	53	82	57
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	125	141	133	116	141	124	106	137	117	95	129	110	87
			Exposed	141	141	141	141	141	141	141	141	141	141	141	136	141	141	141	141	141	124	141	135	119	141	141	107	135	117	94	126	106	84	119	96	65	112	88	57	102	80	51
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	125	141	135	115	141	125	102	141	117	90	132	107	81
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	124	141	139	118	141	126	103	140	116	89	129	103	66	119	90	57	110	80	51	97	60	80
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	145	130	147	133	120	147	124	111	144	116	98
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	133	147	134	121	147	123	109	141	113	94	131	99	82	123	87	61	116	66	54
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	150	151	150	138	151	140	128	151	131	120	143	124	113
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	141	129	151	130	119	139	121	108	128	113	95	119	102	85	110	92	65
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	139	122	141	128	112	139	119	98	130	111	88	122	100	75	115	91	60	106	84	54
			Exposed	141	141	133	141	141	126	141	136	119	141	130	114	141	124	105	138	119	97	132	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	128	141	141	122	141	130	109	141	119	94	133	108	82	123	95	61	115	85	53	103	64	84
			Exposed	141	141	135	141	141	126	141	140	119	141	132	112	141	125	101	141	119	92	136	113	85	124	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	145	130	147	133	120	147	124	111	144	116	98
			Exposed	147	147	147	147	147	144	147	147	134	147	141	126	147	133	120	147	126	114	147	120	104	136	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	145	133	151	134	122	144	124	114	133	116	100	123	107	90	115	96	81
			Exposed	151	151	151	151	151	151	151	151	142	151	147	134	151	139	128	151	133	122	148	127	116	133	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	139	122	141	128	112	139	119	98	130	111	88	122	100	75	115	91	60	106	84	54
			Exposed	141	141	133	141	141	126	141	136	119	141	130	114	141	124	105	138	119	97	132	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	135	141	141	128	141	141	122	141	130	109	141	119	94	133	108	82	123	95	61	115	85	53	103	64	84
			Exposed	141	141	135	141	141	126	141	140	119	141	132	112	141	125	101	141	119	92	136	113	85	124	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	145	130	147	133	120	147	124	111	144	116	98
			Exposed	147	147	147	147	147	144	147	147	134	147	141	126	147	133	120	147	126	114	147	120	104	136	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	141	151	145	133	151	134	122	144	124	114	133	116	100	123	107	90	115	96	81
			Exposed	151	151	151	151	151	151	151	151	142	151	147	134	151	139	128	151	133	122	148	127	116	133	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	B	0-7	Interior	141	141	141	141	141	141	141	141	134	141	141	128	141	139	122	141	133	117	141	127	111	137	118	96	127	108	85	119	97	65	112	88	57	101	80	50	92	63	72
			Exposed	141	139	122	141	131	115	141	125	107	139	119	98	132	114	91	127	107	84	122	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	141	141	141	141	141	141	141	141	136	141	141	128	141	141	122	141	136	116	141	129	108	141	118	91	130	104	73	120	91	58	110	80	51	96	60	78	86	53	60
			Exposed	141	141	121	141	134	114	141	126	103	141	119	93	136	113	85	129	103	68	123	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	148	148	148	148	148	148	148	148	148	148	147	148	148	138	148	145	130	148	137	124	148	125	112	142	114	95	132	99	83	123	87	61	116	65	54	106	58	85	
			Exposed	148	148	137	148	143	128	148	134	121	148	126	114	148	120	104	141	114	94	134	104	86	124	88	62	115	64	53	102	55	82	92	86	61	83	64	53	64	57	46
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	146	152	151	138	152	144	132	152	132	121	141	122	110	129	114	96	119	102	85	109	91	65	96	83	57
			Exposed	152	152	145	152	149	136	152	140	129	152	133	122	148	127	116	140	121	109	132	116	100	120	103	86	107	90	63	92	80	55	81	61	85	60	54	64	53	82	57
20	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	116	127	124	106	127	117	95	127	110	87
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	128	115	128	125	102	128	117	90	128	107	81
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	136	136	136	136	136
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	134	121	136	123	109	136	113	94	131	99	82	123	87	61	116	66	54
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	128	141	131	120	140	124	113			
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	129	141	130	119	139	121	108	128	113	95	119	102	85	110	92	65
	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	136	136	136	136	136
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	134	121	136	123	109	136	113	94	131	99	82	123	87	61	116	66	54
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	138	141	141	128	141	131	120	140	124	113			
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	129	141	130	119	139	121	108	128	113	95	119	102	85	110	92	65
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	112	127	127	112	127	127	111	88	122	100	75	115	91	60	106	84	54
			Exposed	127	127	127	127	127	126	127	127	119	127	127	114	127	124	105	127	119	97	127	114	91	123	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	109	128	128	109	128	128	82	123	95	61	115	85	53	103	64	84
			Exposed	128	128	128	128	128	126	128	128	119	128	128	112	128	125	101	128	119	92	128	113	85	124	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	125	136	136	125	136	136	99	135	104	87	126	92	64	119	82	57
			Exposed	136	136	136	136	136	134	136	136	126	136	136	126	136	133	120	136	126	114	136	120	104	136	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	133	141	141	133	141	141	116	100	123	107	90	115	96	81		
			Exposed	141	141	141	141	141	141	141	141	141	141	141	134	141	139	128	141	133	122	141	127	116	133	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	127	111	127	118	96	127	108	85	119	97	65	112	88	57	101	80	50	92	63	72
			Exposed	127	127	122	127	127	115	127	125	107	127	119	98	127	114	91	127	107	84	122	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	122	128	128	116	128	128	108	128	118	91	128	104	73	120	91	58	110	80	51	96	60	78	86	53	60
			Exposed	128	128	121	128	128	114	128	126	103	128	119	93	128	113	85	128	103	68	123	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	130	138	137	124	138	125	112	138	114	95	132	99	83	123	87	61	116	65	54	106	58	85
			Exposed	138	138	137	138	138	128	138	134	121	138	126	114	138	120	104	138	114	94	134	104	86	124	88	62	115	64	53	102	55	82	92	86	61	83	64	53	64	57	46
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	138	143	143	132	143	132	121	141	122	110	129	114	96	119	102	85	109	91	65	96	83	57
			Exposed	143	143	143	143	143	136	143	140	129	143	133	122	143	127	116	140	121	109	132	116	100	120	103	86	107	90	63	92	80	55	81	61	85	60	54	64	53	82	57

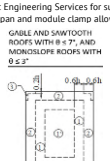
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

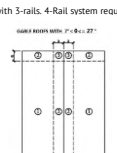
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

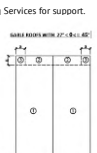
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

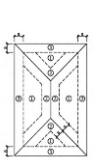












**Wind loads used to generate the span tables for modules with maximum dimensions of

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

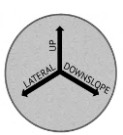
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

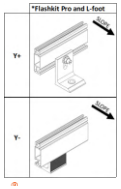
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	116	118	118	106	118	118	95	118	110	87			
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	117	94	118	106	84	118	96	65	112	88	57	102	80	51
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	115	119	119	102	119	119	90	119	107	81			
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	118	119	119	103	119	116	89	119	103	66	119	90	57	110	80	51	97	60	80
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	120	128	124	111	128	116	98			
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	121	128	123	100	128	113	94	128	99	82	123	87	61	116	86	54
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	120	124*	124*	113			
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	119	124*	121	108	124*	113	95	119	102	85	110	92	65
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	112	118	118	98	118	111	88	118	100	75	115	91	60	106	84	54
			Exposed	118	118	118	118	118	118	118	118	118	114	118	118	105	118	118	97	118	114	91	118	100	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53		
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	109	119	119	94	119	108	82	119	95	61	115	85	53	103	64	84
			Exposed	119	119	119	119	119	119	119	119	119	112	119	119	101	119	119	92	119	113	85	119	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47		
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	125	128	127	115	128	117	99	128	104	87	126	92	64	119	82	57
			Exposed	128	128	128	128	128	128	128	128	128	126	128	128	120	128	126	114	128	120	104	128	105	88	125	90	63	117	71	55	107	58	86	96	51	64	87	81	57		
		27-45	Interior	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	123*	124*	124*	114	124*	116	100	124*	107	90	115	96	81
			Exposed	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	124*	122	124*	124*	116	124*	117	101	122	105	88	112	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	111	118	118	111	118	118	96	118	108	85	118	97	65	112	88	57	101	80	50	92	63	72
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	108	119	119	91	119	104	73	119	91	58	110	80	51	96	60	78
			Exposed	119	119	119	119	119	114	119	119	103	119	119	93	119	113	85	119	103	68	119	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	124	130	125	112	130	114	95	130	99	83	123	87	61	116	65	54	106	58	85
			Exposed	130	130	130	130	130	128	130	130	121	130	126	114	130	120	104	130	114	94	130	104	86	124	88	62	115	64	53	102	55	82	92	86	61	83	64	53	64	57	46
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	121	129	122	110	129	114	96	119	102	85	109	91	65	96	83	57
			Exposed	129	129	129	129	129	129	129	129	129	122	129	127	116	129	121	109	129	116	100	120	103	86	107	90	63	92	80	55	81	61	85	60	54	64	53	82	57		
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	95	115	110	87			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	94	115	106	84	115	96	65	112	88	57	102	80	51
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	103	116	116	89	116	103	66	116	90	57	110	80	51	97	60	80
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	103	116	116	89	116	103	66	116	90	57	110	80	51	97	60	80
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	111*	114*	114*	98			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	109*	114*	113*	94	114*	114*	99	114*	92	82	114*	87	61	114*	66	54
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*			
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	110*	110*	110*	108*	110*	110*	95	110*	102*	85	110*	92	65
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	112	115	115	98	115	111	88	115	100	75	115	91	60	106	84	54
			Exposed	115	115	115	115	115	115	115	115	115	114	115	115	105	115	115	97	115	114	91	115	101	78	114	90	59	103	81	51	93	63	73	85	56	60	72	50	53		
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	109	116	116	94	116	108	82	116	95	61	115	85	53	103	64	84
			Exposed	116	116	116	116	116	116	116	116	116	112	116	116	101	116	116	92	116	113	85	116	96	61	114	83	52	98	61	81	86	54	60	64	84	53	57	63	47		
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*			
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	104	114*	105*	88	114*	90	63	114*	71	55	107*	58	86	96	51	64	87	81	57
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	101*	110*	107*	90	110*	96	81
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	101*	110*	105*	88	110*	93	68	97	83	58	85	64	51	63	57	80
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	111	118	118	96	118	108	85	118	97	65	112	88	57	101	80	50	92	63	72
			Exposed	118	118	118	118	118	115	118	118	107	118	118	98	118	114	91	118	107	84	118	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	116	118	118	108	118	118	91	118	104	73	118	91	58	110	80	51	96	60	78	86	53	60
			Exposed	118	118	118	118	118	114	118	118	103	118	118	93	118	113	85	118	103	68	118	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	119*	112	119*	114	95	119*	99	83	119*	87	61	116*	65	54	106	58	85
			Exposed	119*	119*	119*	119*	119*	119*	119*	119*	119*	114	119*	119*	104	119*	114	94	119*	104	86	119*	94	68	108	84	62	115*	64	53	102	55	82	92	86	61	83	64	53	64	57	46
		27-45	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	110*	115*	114*	96	115*	102	85	110*	91	65	96	83	57
			Exposed	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	109*	115*	115*	100	115*	103	86	108*	90	63	92	80	55	81	61	85	60	54	64	53	82	57		
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	106	108	108	95	108	108	87			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	107	108	108	88	108	106	84	108	96	65	108	88	57	102	80	51
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	102	113*	113*	90	113*	107*	81
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	103	113*	103	88	113*	103	66	113*	90	57	110*	80	51	97	60	80
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	98*			
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	94*	102*	99*	82	102*	87*	61	102*	66	54
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*			
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	95*	96*	96*	85*	96*	92*	65
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	95	108	108	87			
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	107	108	108	88	108	108	88	108	100	75	108	91	60	106	84	54
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	109*	113*	113*	94	113*	108*	82	113*	95	61	112*	85	53	103	64	84
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	112*	113*	113*	101	113*	113*	92	113*	113*	85	113*	96	61	113*	83	52	98	61	81	86	54	60	64	84	53	57	63	47		
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	98*			
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	88*	102*	90*	63	102*	71	55	102*	58	86	96*	51	64	87*	81	57
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*			
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	88*	96*	93*	68	96*	83*	58	85*	64	51	63	57	80
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	111	112	112	96	112	108	85	112	97	65	112	88	57	101	80	50	92	63	72
			Exposed	112	112	112	112	112	112	112	112	107	112	112	98	112	112	91	112	107	84	112	100	74	112	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	108	116*	116*	91	116*	104	73	116*	91	58	110	80	51	96	60	78	86	53	60
			Exposed	116*	116*	116*	116*	116*	113	116*	116*	103	116*	116*	93	116*	113	85	116*	103	68	116*	94	60	111	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	95*	108*	99*	83	108*	87	61	108*	65	54	106*	58	85
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	104*	108*	108*	94	108*	104*	86	108*	88	62	108*	84	62	108*	64	53	102*	55	82	92	86	61	83	64	53	64	57	46
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	96*	105*	102*	85	105*	92*	65	96*	83	57			
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	100*	105*	103*	86	105*	90*	63	92*	80	55	81	61	85	60	54	64	53	82	57		

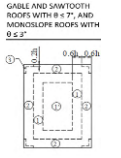
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

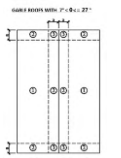
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

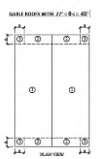
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

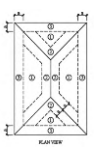












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

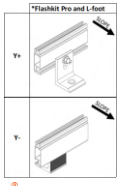
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	95	99	99	99	99	99	87
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	84	99	96	65	99	88	57	99	80	51
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	102*	105*	105*	105*	105*	105*	81
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	103*	105*	105*	89*	105*	103*	66	105*	90*	57	105*	80	51	97*	60	80
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	61	87*	66	54
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	65
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	98	99	99	88	99	99	75	99	91	60	99	84	54			
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	78	99	90	59	99	81	51	93	63	73	85	56	60	72	50	53
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	94*	105*	105*	82	105*	95*	61	105*	85	53	103*	64	84
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	85	105*	96*	61	105*	81	86	54	60	64	84	53	57	63	47	
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	64	87*	82*	57
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	71	55	87*	87*	58	86	87*	51	64	87*	81	57
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	81*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	69*	82*	82*	58	82*	64	51	63	57	80
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	85	104	97	65	104	88	57	101	80	50	92	63	72			
			Exposed	104	104	104	104	104	104	104	104	104	104	104	98	104	104	91	104	104	84	104	100	74	104	88	58	100	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	108*	110*	110*	91	110*	104*	73	110*	91	58	108*	80	51	96	60	78	86	53	60
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	103*	110*	110*	93	110*	110*	85	110*	103*	68	110*	94	60	110*	81	51	95	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	83*	95*	87*	61	95*	65	54	95*	58	85
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	94*	95*	95*	86*	95*	88*	62	95*	64	53	95*	55	82	92*	86	61	83*	64	53	64	57	46
		27-45	Interior	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	85*	90*	90*	65	90*	83*	57
			Exposed	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	90*	86*	90*	90*	63	90*	80*	55	81*	61	85	60	54	64	53	82	57
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	84	92	92	84	92	92	84	92	92	84	92	92	87			
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	87
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	90*	91*	91*	81*			
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	80
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	66*	54
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	65*
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	88	92	92	75	92	91	60	92	84	54						
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	78	92	90	59	92	81	51	92	63	73	85	56	60	72	50	53
		7-20	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	82*	91*	91*	61	91*	85*	53	91*	64	84
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	85*	91*	91*	61	91*	83*	52	91*	61	81	86*	54	60	64	84	53	57	63	47
		20-27	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64*	75*	75*	57
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	71*	55	75*	58	86	75*	51	64	75*	81	57
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	68*	71*	71*	58	71*	64*	51	64*	57	80			
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	96	97	97	85	97	97	65	97	88	57	97	80	50	92	63	72
			Exposed	97	97	97	97	97	97	97	97	97	97	97	97	97	97	91	97	97	84	97	97	74	97	88	58	97	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	91*	100*	100*	73	100*	91*	58	100*	80	51	96*	60	78	86*	53	60
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	93*	100*	100*	85*	100*	100*	68	100*	94*	60	100*	81	51	95*	59	70	83	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	61	83*	65	54	83*	58	85
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	86	61	83*	64	53	64	57	46
		27-45	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	65	78*	78*	57
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	55	78*	61	85	60	54	64	53	82	57			
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87			
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	87	87	87	87	87	87	87	87	87	87	87	87	87	80	51
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	66	80*	80*	57	80*	80*	51	80*	60	80
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	61*	66*	66*	54
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	75	87	87	60	87	84	54			
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	78	87	87	59	87	81	51	87	63	73	85	56	60	72	50	53
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	80*	53	80*	64	84
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	80*	52	80*	61	81	80*	54	60	64	84	53	57	63	47
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	64*	66*	66*	57
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	63*	66*	66*	55	66*	58	86*	66*	51	64	66*	81	57
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	58*	63*	63*	51	63*	57*	80*						
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85	91	91	65	91	88	57	91	80	50	91	63	72
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	74	91	88	58	91	76	50	90	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	73	88*	88*	58	88*	80*	51	88*	60	78	86*	53	60
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	85*	88*	88*	68	88*	88*	60	88*	81	51	88*	59	70	83*	51	57	61	78	50	54	60	44	85	53	39
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	61	73*	65*	54	73*	58	85
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	62*	73*	73*	55	82	73*	86	61	73*	64	53	64*	57	46
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	65*	69*	69*	57
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	64*	69*	69*	55	69*	61*	85	60*	54	64	53	82	57

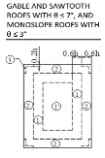
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

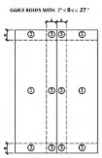
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

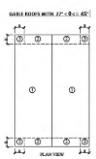
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

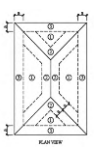












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

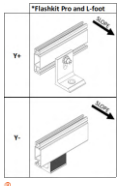
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	65	82	82	57	82	80	51		
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	66*	72*	72*	57	72*	72*	51	72*	60	80
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	54*
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	75	82	82	60	82	82	54		
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	78	82	82	59	82	81	51	82	63	73
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	52	72*	61*	72*	54	60
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	55*	59*	58*	86*	59*	51*	64
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	86	57	86	86	65	86	86	57		
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	74	86	86	58	86	76	50	86	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	73*	79*	79*	79*	79*	79*	79*	79*	79*	79*	58	79*	79*	51	79*	60	78
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	68*	79*	79*	60	79*	79*	51	79*	59	70	79*	51	57	61	78	50	54	60	44	85	53	89
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	61*	66*	65*	54
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	62*	66*	64*	53	66*	55	82	66*	86*	61	66*	64	53	64*	57	48
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	55*	62*	61*	85*	60*	54*	64	53*	83*	57
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	57*	65*	65*	57*	65*	60*	80
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	75	78	78	60	78	78	54		
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	59	78	78	51	78	63	73
		7-20	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	61*	65*	65*	53
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	61*	65*	65*	52	65*	61*	81	65*	54	60	64*	84*	53	57*	63	47
		20-27	Interior	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*
			Exposed	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	54*	81*	54*	51*	64
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	65	82	82	57	82	80	50
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	74	82	82	58	82	76	50	82	60	65	81	53	57	64	78	50	57	62	45
		7-20	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	58	72*	72*	51	72*	60	78
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	68*	72*	72*	60	72*	72*	51	72*	59	70	72*	51	57	61*	78	50	54	60	44	85	53	89
		20-27	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	53*	59*	55*	82*	59*	86*	61	59*	64	53	59*	57	48
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*
			Exposed	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	55*	57*	57*	85*	57*	54*	64	53*	82*	57

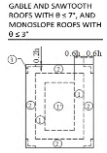
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

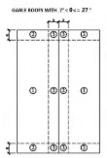
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

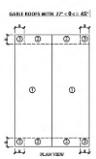
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

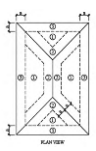












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

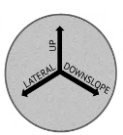
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

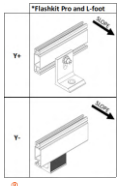
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	116	120	120	110	120	120	104	120	113	93	120	102	84	114	93	72	105	85	58	97	78	48	90	65	40
			Exposed	120	120	116	120	120	109	120	119	101	120	114	95	120	107	89	120	101	84	116	95	77	105	86	59	95	76	47	87	61	37	80	50	32	66	42	43	56	35	38
		7-20	Interior	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	120*	115*	120*	120*	109	120*	120*	102	120*	112	91	120*	100	82	114	90	64	103	82	50	94	68	40	87	55	34
			Exposed	120*	120*	115*	120*	120*	107	120*	119*	99	120*	113	92	120*	106	86	120*	99	81	116*	93	69	104	83	51	93	66	39	84	51	33	72	40	43	56	34	38	45	30	34
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	105	116*	107	94	116*	97	85	116*	88	72	109*	81	57	101	64	46
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	107	116*	113*	99	116*	106	93	116*	100	87	116*	88	74	108*	79	55	98	59	42	90	46	34	83	37	30	71	32	41
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	103*	112*	106*	93	112*	97	85	103*	89	76	94	83	61			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	112*	102*	112*	109*	96	112*	98	86	101*	88	74	92	81	57	83	65	45	70	53	37	55	44	32
	C	0-7	Interior	120	120	118	120	120	113	120	120	105	120	116	98	120	111	92	120	105	87	119	99	82	109	89	65	99	81	51	90	66	41	83	54	34	72	45	30	60	38	40
			Exposed	120	111	92	120	103	85	117	96	79	111	90	67	104	85	57	98	80	50	93	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	120*	120*	118*	120*	120*	111	120*	120*	103	120*	116*	96	120*	110	90	120*	103	84	119*	97	77	108	86	56	97	73	43	88	56	34	80	44	30	62	36	40	50	32	36
			Exposed	120*	110	89	120*	101	83	117*	94	71	110	87	59	103	82	49	96	71	42	90	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	104	116*	111*	97	116*	104	91	116*	92	81	112*	83	61	101	66	47	93	51	37	86	41	32	78	34	43
			Exposed	116*	116*	103	116*	109*	95	116*	108	88	116*	93	82	116*	87	71	111*	82	59	104	72	50	94	52	37	85	40	31	73	33	41	58	29	36	48	38	32	40	34	26
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	106*	112*	112*	100	112*	101*	89	106*	92	81	95	83	63	87	71	50	78	58	40	62	48	34
			Exposed	112*	112*	112*	112*	112*	104*	112*	110*	97	112*	103*	91	112*	96	85	105*	91	80	98	86	68	87	73	51	75	56	39	57	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	120	120	108	120	118	100	120	112	93	120	105	87	119	99	82	114	93	73	108	88	63	97	79	49	88	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	118	99	82	113	92	70	105	86	59	99	81	50	93	70	43	87	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	120*	120*	106	120*	117*	98	120*	111	91	120*	103	84	119*	97	77	114	91	64	107	85	55	95	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	119*	96	76	112	89	62	104	83	51	97	72	42	90	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	105	116*	111*	97	116*	103	91	116*	97	85	116*	91	80	110*	81	58	99	61	44	90	47	35	83	37	30	70	32	40	58	29	36
			Exposed	116*	103	91	116*	95	84	116*	88	74	111*	82	60	104	72	50	98	60	43	93	51	36	83	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	100	112*	112*	102	112*	112*	98	112*	98	86	101*	88	74	92	81	57	83	65	45	70	53	37	55	43	32
			Exposed	112*	112*	99	112*	105*	92	112*	97	86	105*	91	80	98	86	68	92	81	57	86	71	49	71	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	110	111	111	104	111	111	93	111	102	84	111	93	72	105	85	58	97	78	48	90	65	40
			Exposed	111	111	92	111	103	85	111	96	79	111	90	67	104	85	57	98	80	50	93	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	115*	116*	116*	109	116*	116*	102	116*	112	91	116*	100	82	112	90	64	103	82	50	94	68	40	87	55	34
			Exposed	116*	116*	115*	116*	116*	107	116*	116*	99	116*	112	92	116*	106	86	116*	99	81	116*	93	69	104	83	51	93	66	39	84	51	33	72	40	43	56	34	38	45	30	34
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	105	116*	107	94	116*	97	85	116*	88	72	109*	81	57	101	64	46
			Exposed	116*	116*	116*	116*	116*	116*	116*	116*	114*	116*	116*	107	116*	113*	99	116*	106	93	116*	100	87	116*	88	74	108*	79	55	98	59	42	90	46	34	83	37	30	71	32	41
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	103*	112*	106*	93	112*	97	85	103*	89	76	94	83	61			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	112*	102*	112*	109*	96	112*	98	86	101*	88	74	92	81	57	83	65	45	70	53	37	55	44	32
	C	0-7	Interior	111	111	111	111	111	111	111	111	105	111	111	98	111	111	92	111	105	87	111	99	82	109	89	65	99	81	51	90	66	41	83	54	34	72	45	30	60	38	40
			Exposed	111	111	92	111	103	85	111	96	79	111	90	67	104	85	57	98	80	50	93	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	116*	116*	116*	116*	116*	111	116*	116*	96	116*	116*	96	116*	116*	104	116*	111*	97	116*	104	91	116*	92	81	112*	83	61	101	66	47	93	51	37	86	41	32	78	34	43
			Exposed	116*	110	89	116*	101	83	116*	94	71	110	87	59	103	82	49	96	71	42	90	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	116*	111*	116*	116*	104	116*	111*	97	116*	104	91	116*	92	81	112*	83	61	101	66	47	93	51	37	86	41	32	78	34	43
			Exposed	116*	116*	103	116*	109*	95	116*	100	88	116*	93	82	116*	87	71	111*	82	59	104	72	50	94	52	37	85	40	31	73	33	41	58	29	36	48	38	32	40	34	26
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	100	112*	112*	102	112*	112*	98	112*	98	86	101*	88	74	92	81	57	83	65	45	70	53	37	55	43	32
			Exposed	112*	112*	99*	112*	105*	92	112*	97	86	105*	91	80	98	86	68	92	81	57	86	71	49	71	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
	D	0-7	Interior	111	111	108	111	111	100	111	111	93	111	105	87	111	99	82	111	93	73	108	88	63	97	79	49	88	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	111	99	82	111	92	70	105	86	59	99	81	50	93	70	43	87	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	117*	117*	106	117*	117*	98	117*	111	91	117*	103	84	117*	97	77	112	91	64	107	85	55	95	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	117*	96	76	112	89	62	104	83	51	97	72	42	90	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	116*	116*	116*	116*	116*	113*	116*	116*	105	116*	111*	97	116*	103	91	116*	97	85	116*	91	80	110*	81	58	99	61	44	90	47	35	83	37	30	70	32	40	58	29	36
			Exposed	116*	103	91	116*	95	84	116*	88	74	111*	82	60	104	72	50	98	60	43	93	51	36	83	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	100	112*	106*	94	112*	101*	88	103*	90	78	93	81	59	84	66	46	70	53	37	55	43	32	44	36	28
			Exposed	112*	112*	99*	112*	105*	92	112*	97	86	105*	91	80	98	86	68	92	81	57	86	71	49	71	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	87	96	96	82	96	89	65	96	81	51	90	66	41	83	54	34	72	45	30
			Exposed	96	96	92	96	96	85	96	96	79	96	90	67	96	85	57	96	80	50	93	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	96	84	96	93	72	96	85	58	96	78	48	90	65	40
			Exposed	96	96	89	96	96	83	96	94	71	96	87	59	96	82	49	96	71	42	90	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	106*	104*	106*	106*	97*	106*	104*	91	106*	92	81	106*	83	61	101*	66	47	93	51	37	86	41	32	78	34	43
			Exposed	106*	106*	103*	106*	106*	95*	106*	100*	88	106*	93	82	106*	87	71	106*	82	59	104	72	50	94*	52	37	85	40	31	73	33	41	58	29	36	48	38	32	40	34	26
		27-45	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	100*	101*	101*	89*	101*	92*	81	95*	83	63	87*	71	50	78	58	40	62	48	34
			Exposed	101*	101*	101*	101*	101*	101*	101*	101*	97*	101*	101*	91*	101*	96*	85*	101*	91*	80	98*	86*	68	87*	73	51	75	56	39	57	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	96	96	96	96	96	96	96	93	96	96	87	96	96	82	96	93	73	96	88	63	96	79	49	88	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	96	96	82	96	92	70	96	86	59	96	81	50	93	70	43	87	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	96	96	96	96	96	96	96	96	91	96	96	84	96	96	77	96	91	64	96	85	55	95	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	96	96	76	96	89	62	96	83	51	96	72	42	90	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	111*	111*	111*	111*	111*	111*	111*	111*	105*	111*	111*	97	111*	103*	91	111*	97	85	111*	91	80	110*	81	58	99	61	44	90	47	35	83	37	30	70	32	40	58	29	36
			Exposed	111*	103*	91	111*	95	84	111*	88	74	111*	82	60	104*	72	50	98	60	43	93	51	36	83	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	100*	107*	106*	94*	107*	100*	88	103*	90	78	93*	81	59	84	66	46	70	53	37	55	43	32	44	36	28
			Exposed	107*	107*	99*	107*	105*	92*	107*	97*	86	105*	92*	80	98*	86	68	92*	81	57	86	71	49	71	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28

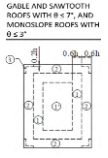
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

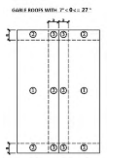
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

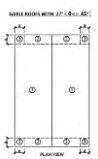
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

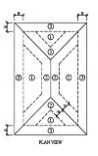












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

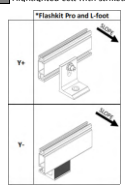
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	72	86	85	58	86	78	48	86	65	40			
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	86	86	77	86	86	59	86	76	47	86	61	37	80	50	32	66	42	43	56	35	38
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	91*	94*	94*	82	94*	90*	64	94*	82	50	94*	68	40	87*	55	34
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	92*	94*	94*	86*	94*	94*	81	94*	93*	69	94*	83*	51	93*	66	39	84*	51	33	72	40	43	56	34	38	45	30	34			
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	72*	80*	80*	57	80*	57	46			
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	74*	80*	79*	55	80*	59	42	80*	46	34	80*	37	30	71*	32	41			
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	61			
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	57	74*	65*	45	70*	53	37	55	44	32
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	65	86	81	51	86	66	41	83	54	34	72	45	30	60	38	40
			Exposed	86	86	86	86	86	85	86	86	79	86	86	67	86	85	57	86	80	50	86	71	43	84	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	90*	94*	94*	84*	94*	94*	77	94*	86*	56	94*	73	43	88*	56	34	80	44	30	62	36	40	50	32	36
			Exposed	94*	94*	89*	94*	94*	83*	94*	94*	71	94*	87*	59	94*	82	49	94*	71	42	90*	61	36	81	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	66	47	80*	51	37	80*	41	32	78*	34	43
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	71*	80*	80*	59	80*	72*	50	80*	52	37	80*	40	31	73*	33	41	58	29	36	48	38	32	40	34	26
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	63*	74*	71*	50	74*	58	40	62	48	34
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	68*	74*	73*	51	74*	56	39	57	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	73	86	86	63	86	79	49	86	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	86	86	82	86	86	70	86	86	59	86	81	50	86	70	43	86	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	96*	96*	96*	96*	96*	96*	96*	96*	91*	96*	96*	84	96*	96*	77	96*	91*	64	96*	85	55	95*	69	41	85	52	33	73	41	29	56	34	38	45	30	33	37	40	30
			Exposed	96*	96*	76	96*	86	62	96*	83	51	96*	72	42	86	60	36	85	51	33	79	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	85*	87*	87*	80*	87*	81*	58	87*	61	44	87*	47	35	83*	37	30	70	32	40	58	29	36
			Exposed	87*	87*	87*	87*	87*	84*	87*	87*	74*	87*	82*	60	87*	72	50	87*	60	43	87*	51	36	83*	38	31	68	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	78*	81*	81*	78*	81*	66	46	70*	53	37	55	43	32	44	36	43
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	80*	81*	81*	68*	81*	81*	57	81*	71*	49	72*	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	72	83	83	58	83	65	40			
			Exposed	83	83	83	83	83	83	83	83	79	83	83	67	83	83	57	83	80	50	83	71	43	83	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	64	76*	76*	50	76*	68*	40	76*	55	34
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	51	76*	76*	43	76*	56	34	76*	51	33
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	46
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	42	62*	62*	46	34	62*	37	30	62*	32	41
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	45	59*	53*	37	55*	44	32
	C	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	65	83	81	51	83	66	41	83	54	34	72	45	30	60	38	40
			Exposed	83	83	83	83	83	83	83	83	79	83	83	67	83	83	57	83	80	50	83	71	43	83	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	56	76*	76*	43	76*	53*	32	76*	36	36
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	71*	76*	76*	59	76*	76*	49	76*	71*	42	76*	61	36	76*	45	30	60	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	47	62*	51	37	62*	41	32	62*	34	43
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59*	62*	62*	50	62*	52	37	62*	40	31	62*	33	41	58*	29	36	48	38	32	40	34	26
		27-45	Interior	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	50*	59*	58*	40	59*	48	34
			Exposed	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	59*	51*	59*	56*	39	57*	45	33	44	36	29	35	32	38	32	43	34
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	73	85	85	63	85	79	49	85	63	38	81	51	32	66	42	43	55	35	38	46	31	34
			Exposed	85	85	82	85	85	70	85	85	59	85	81	50	85	70	43	85	61	38	83	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	77*	84*	84*	64	84*	84*	55	84*	69	41	84*	52	33	73*	41	29	56	34	38	45	30	33	37	40	30
			Exposed	84*	84*	76*	84*	84*	62	84*	83*	51	84*	72*	42	84*	60	36	84*	51	33	79*	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	58*	68*	61*	44	68*	47	35	68*	37	30	68*	32	40	58*	29	36
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	60*	68*	68*	50	68*	60*	43	68*	51	36	68*	38	31	68*	38	32	40	54	41	34	44	36	30	36	32	27	32	28	24
		27-45	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	59*	64*	64*	46	64*	53	37	55*	43	32	44	36	43
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	58*	64*	64*	49	64*	54	38	53	42	32	41	34	41	34	30	36	30	40	32	40	36	28
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	77	77	58	77	77	48	77	65	40
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	59	77	76	47	77	61	37	77	50	32
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	50	62*	62*	40	62*	55*	34
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	39	62*	62*	43	56*	34	38	45	30	34
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	46*
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	42	51*	46*	34	51*	37	30	51*	32	41
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	48*	37	48*	44*	32
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	65	77	77	77	77	66	41	77	54	34	72	45	30	60	38	40
			Exposed	77	77	77	77	77	77	77	77	77	77	77	67	77	77	57	77	77	50	77	71	43	77	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	44	62*	62*	30	62*	50	32
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	59*	62*	62*	49	62*	62*	42	62*	62*	36	62*	45	30	60*	35	39	46	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	47*	51*	51*	37	51*	41	32	51*	34	43
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	37	51*	51*	40	51*	51*	33	48*	48*	30	48*	48*	32	48*	48*	34
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	34
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	34
	D	0-7	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	73	80	80	63	80	79	49	80	63	38	80	51	32	66	42	43	55	35	38	46	31	34
			Exposed	80	80	80	80	80	70	80	80	59	80	80	50	80	70	43	80	61	38	80	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	55	68*	68*	41	68*	52	33	68*	41	29	56	34	38	45	30	33	37	40	30
			Exposed	68*	68*	68*	68*	68*	62*	68*	68*	51	68*	68*	42	68*	60*	36	68*	51	33	68*	44	30	57	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	44	56*	47	35	56*	37	30	56*	32	40	56*	29	36
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	56*	43	56*	51	36	56*	38	31	56*	32	40	54*	41	34	44	36	30	36	32	40	28	24
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	53*	37	53*	43	32	44	36	43
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	38	53*	42	32	41	34	41	34	30	36	30	40	32	40	36	28

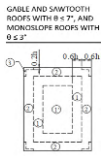
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

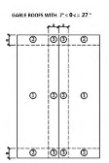
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

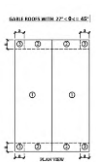
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

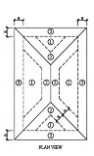












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

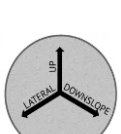
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

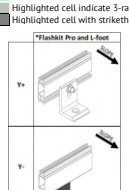
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	70	48	70	65	40
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	59	70	70	47	70	61	37	70	50	32	66	42	43	56	35	38
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	40	53*	53*	34			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	51*	53*	53*	39	53*	51*	33	53*	40	43	53*	34	38	45*	30	34
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	34	43*	37*	30	43*	32	41
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	37*	41*	41*	37*	41*	41*	32
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	51	70	66	41	70	54	34	70	45	30	60	38	40
			Exposed	70	70	70	70	70	70	70	70	70	67	70	70	57	70	70	50	70	70	50	70	70	43	70	55	34	70	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	43	53*	53*	34	53*	44	30	53*	36	40	50*	32	36
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	49*	53*	53*	42	53*	53*	36	53*	53*	30	53*	45*	30	53*	35	39	46*	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	41*	32	43*	34	43
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	31	43*	33	41	43*	29	36	43*	38	32	40*	34	26
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40*	41*	41*	34
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	33	41*	36*	29	36*	32	38	32	43	34			
	D	0-7	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	63	74	74	49	74	74	63	38	74	51	32	66	42	74	63	38	46	31	34
			Exposed	74	74	74	74	74	70	74	74	59	74	74	50	74	70	43	74	61	38	74	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	55*	58*	58*	41	58*	52*	33	58*	41	29	56*	34	38	45	30	33	37	40	30
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	51*	58*	58*	42	58*	58*	36	58*	51*	33	58*	44	30	57*	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	44*	48*	47*	35	48*	37	30	48*	32	40	48*	29	36			
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	43*	48*	48*	36	48*	38	31	48*	32	40	48*	41	34	44*	36	30	36	32	27	32	28	24
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	37	45*	43*	32	44*	36	43			
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	38	45*	42*	32	41*	34	41	34	30	36	30	40	32	40	36	28
70	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	40
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	47	65	61	37	59	65	32	65	42	43	56	35	38
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	45*	34
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	33	45*	40*	43	45*	34	38	45*	30	34
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	37*	30	38*	32*	41
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	32*
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	51	65	65	41	65	54	34	65	45	30	60	38	40
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	57	65	65	50	65	65	50	65	65	43	65	55	34	65	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	42*	45*	45*	36	45*	45*	30	45*	35	39	45*	30	34	37	40	30	32	35	26	43	31	23
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	32*	38*	34*	43
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	31	38*	33*	41	38*	29	36	38*	38	32	38*	34	26
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	35*	32*	38	32*	43	34
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	69	69	49	69	63	38	69	51	32	66	42	43	55	35	38	46	31	34
			Exposed	69	69	69	69	69	69	69	69	59	69	69	50	69	69	43	69	61	38	69	54	34	67	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	41	50*	50*	33	50*	41	29	50*	34	38	45*	30	33	37	40	30
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	42	50*	50*	36	50*	50*	33	50*	44*	30	50*	34	38	43	29	33	35	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	35	41*	37*	30	41*	32	40	41*	29	36
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	40	41*	41*	34	41*	36	30	36*	32	24
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	37*	39*	39*	32	39*	36*	43
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	38*	39*	39*	32	39*	34*	41	34*	30	36	30	40	32	40	36	28
80	B	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	48	61	61	40		
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	37	61	61	37	61	50	32	61	42	43	56	35	38
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	34*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	33	40*	40*	43	40*	34*	38	40*	30	34
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	30*	33*	32*	41
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
	C	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	41	61	61	41	61	54	34	61	45	30	60	38	40
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	57	61	61	50	61	61	50	61	61	43	61	55	34	61	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	30	40*	35*	39	40*	30	34	37*	40	30	43	31	23
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	32*	33*	32*	43*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	33*	41	33*	29*	36	33*	33	38	32	33*	34	28		
		27-45	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	29*	32*	32*	38	32*	43*	34
	D	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	49	65	63	38	65	51	32	65	42	43	55	35	38	46	31	34
			Exposed	65	65	65	65	65	65	59	65	65	50	65	65	43	65	61	38	65	54	34	65	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22		
		7-20	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	41*	44*	44*	33	44*	41*	29	44*	34	38	44*	30	33	37	40	30
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	44*	44*	36	44*	44*	33	44*	44*	30	44*	34	38	43*	29	33	35	38	28	30	34	25	40	30	22	36	26	20		
		20-27	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	35*	37*	37*	30	37*	32*	40	37*	29	36
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	36*	37*	37*	31	37*	32*	40	37*	41	34	37*	36	30	36*	32	24
		27-45	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	35*	43
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	34*	41	34*	30*	36	30*	40	32	40	36	28

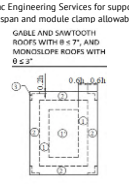
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

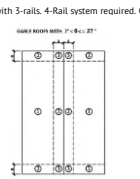
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

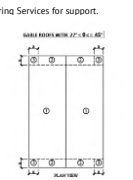
34 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

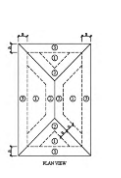












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

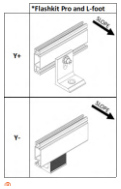
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	40
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	47	58	58	37	58	50	32	58	42	43	56	35	38
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	43	36*	34*	38	36*	30	34
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	41	58	54	34	58	45	30	58	38	40
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	58	58	50	58	58	43	58	55	34	58	44	29	57	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	30	36*	36*	40	36*	32*	36
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	30	36*	35*	39	36*	30	34	36*	40	30	32*	35	26	43	31	23
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	43*
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	43*	36	45*	38*	32	45*	34	28	43*	34	28
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	38*	43*	43*	34
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	49	61	61	38	61	51	32	61	42	43	55	35	38	46	31	34
			Exposed	61	61	61	61	61	61	61	61	59	61	61	50	61	61	43	61	61	38	61	54	34	61	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33	40*	40*	29	40*	34*	38	40*	40*	30	37*	40	30
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	33	40*	40*	30	40*	34*	38	40*	29	33	35*	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	32*	33*	33*	32*	33*	32*	30*	33*	32*	40	33*	29*	36
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	32*	40	33*	41	34	33*	36	30	33*	32	27	32*	28	24
		27-45	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	43*
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	46*	36	45*	40*	32	40*	36	28
100	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	48	55	55	40
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	37	55	50	32	55	42	43	55	35	38
		7-20	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	43*	32*	32*	38	32*	30*	34
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	41	55	54	34	55	45	30	55	38	40
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	43	55	55	34	55	44	29	55	36	39	47	31	34	39	42	30	34	37	26
		7-20	Interior	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*
			Exposed	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	32*	30*	32*	32*	39	32*	30*	34	32*	40	30	32*	35	26	43*	31	23
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	38*	32	40*	34	26
		27-45	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	38*	39*	39*	34*
	D	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	49	58	58	38	58	51	32	58	42	43	55	35	38	46	31	34
			Exposed	58	58	58	58	58	58	58	58	58	58	58	50	58	58	43	58	58	38	58	54	34	58	43	43	54	35	37	44	30	32	36	40	28	32	35	25	42	31	22
		7-20	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	36*	34*	38	36*	36*	30	36*	40	30
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	30	36*	34*	38	36*	29	33	35*	38	28	30	34	25	40	30	22	36	26	20
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	43*	36
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	34	45*	45*	36	45*	36	30	45*	40	27	45*	28	24
		27-45	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36	43*	40*	32	40*	36	28	40*	36	28

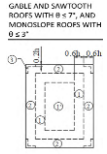
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

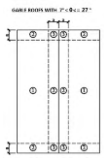
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

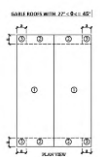
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

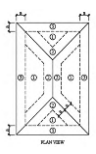












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

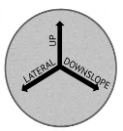
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

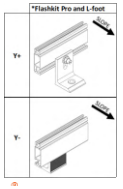
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	145	149	149	133	149	141	123	104	135	116	94	128	108	85
			Exposed	149	149	149	149	149	149	149	149	142	149	149	135	149	146	128	149	140	123	149	134	117	145	124	105	134	115	92	125	105	82	118	95	63	110	86	56	100	77	84
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	135	149	146	123	149	134	114	149	124	100	140	116	88	130	105	75
			Exposed	149	149	149	149	149	149	149	149	145	149	149	137	149	149	129	149	145	122	149	137	117	149	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	143	128	150	132	119	150	122	108	142	115	96
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	150	139	150	147	132	150	132	120	150	121	106	139	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	149	136	151	138	127	151	130	119	141	122	110
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	140	151	151	140	151	139	127	151	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	C	0-7	Interior	149	149	149	149	149	149	149	149	146	149	149	139	149	149	132	149	144	126	149	137	121	149	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	149	149	132	149	142	124	149	135	118	149	128	112	143	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	133	149	149	126	149	142	120	149	129	107	143	118	92	131	106	80	121	93	59	113	83	52	100	62	83
			Exposed	149	149	133	149	147	125	149	138	117	149	130	109	149	123	99	142	117	91	134	111	83	122	94	60	111	82	51	96	60	76	85	52	59	63	82	52	56	62	46
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	144	150	150	136	150	137	123	150	125	113	143	115	97	133	102	85	125	90	63	118	80	56
			Exposed	150	150	150	150	150	150	142	150	148	133	150	139	125	150	131	118	150	124	112	146	118	101	134	103	86	124	88	62	116	65	54	105	57	84	94	50	62	85	78	56
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	144	151	143	131	151	132	121	142	123	112	131	115	98	122	105	88	114	95	75
			Exposed	151	151	151	151	151	150	151	151	141	151	145	133	151	138	126	151	131	120	146	126	115	132	116	99	120	103	86	109	91	64	95	82	56	84	63	87	62	56	72
	D	0-7	Interior	149	149	149	149	149	141	149	149	133	149	144	126	149	137	121	149	131	115	148	126	109	136	117	94	126	106	84	118	95	64	110	86	56	99	75	84	91	62	68
			Exposed	149	137	120	149	130	114	144	124	105	137	118	96	131	113	89	126	105	83	120	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	149	149	149	149	149	144	149	149	135	149	149	127	149	142	120	149	134	114	149	127	105	141	116	89	128	102	65	118	89	56	107	72	87	94	59	68	84	52	58
			Exposed	149	141	120	149	132	113	149	124	101	143	118	91	134	111	83	127	101	64	121	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	145	150	150	136	150	143	129	150	136	122	150	123	110	140	113	93	130	97	81	122	85	60	115	63	53	104	56	84
			Exposed	150	150	136	150	141	127	150	132	119	150	125	112	146	118	101	139	111	92	133	101	85	122	86	60	114	62	52	101	54	81	90	84	59	81	63	52	63	56	47
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	144	151	151	144	151	151	136	147	151	130	151	130	119	139	121	108	127	112	94	118	100	84	107	90	63	94	82	56
			Exposed	151	151	144	151	147	135	151	139	127	151	132	121	146	126	115	138	120	106	131	115	98	119	101	84	105	88	62	90	74	54	72	59	83	58	52	63	52	81	56
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
			Exposed	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	135	140	140	123	140	134	114	140	124	100	140	116	88	130	105	75
			Exposed	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	139	139	139	132	139	139	126	139	137	121	139	127	110	138	118	97	129	109	86	121	99	70	114	90	59	104	82	52
			Exposed	139	139	132	139	139	124	139	135	118	139	128	112	139	123	103	137	118	96	131	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
			Exposed	140	140	140	140	140	132	140	140	140	140	140	137	140	140	129	140	140	122	140	137	117	140	125	101	138	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	143	128	146	132	119	146	122	108	142	115	96
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	132	146	132	120	146	121	106	139	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	148	150	149	136	150	138	127	150	130	119	141	122	110
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	140	150	150	140	150	139	127	150	129	118	137	120	106	127	111	93	118	100	84	108	90	64
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	115	126	123	104	126	116	94	126	108	85
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	123	126	126	117	126	124	105	126	115	92	125	105	82	118	95	63	110	86	56	100	77	84
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	114	127	124	100	127	116	88	127	105	75
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	122	127	127	117	127	125	101	127	115	87	127	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	96
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	132	135	132	120	135	121	106	135	111	92	130	96	81	122	85	60	115	64	53
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	138	127	140	130	119	139	122	110
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	139	127	140	129	118	137	120	106	127	111	93	118	100	84	108	90	64
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	110	126	118	97	126	109	86	121	99	70	114	90	59	104	82	52
			Exposed	126	126	126	126	126	124	126	126	118	126	126	112	126	123	103	126	118	96	126	113	89	121	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	107	127	127	120	127	127	107	127	93	59	113	83	52	100	62	83
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		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	123	135	125	113	135	115	97	133	102	85	125	90	63	118	80	56
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		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	131	140	132	121	139	123	112	131	115	98	122	105	88	114	95	75
			Exposed	140	140	140	140	140	140	140	140	140	140	140	133	140	138	126	140	131	120	140	126	115	132	116	99	120	103	86	109	91	64	95	82	56	84	63	87	62	56	72
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	121	126	126	115	126	126	109	126	117	94	126	106	84	118	95	64	110	86	56	99	75	84	91	62	68
			Exposed	126	126	120	126	126	114	126	124	105	126	118	96	126	113	89	126	105	83	120	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	120	127	127	114	127	127	105	127	116	89	127	102	65	118	89	56	107	72	87	94	59	68	84	52	58
			Exposed	127	127	120	127	127	113	127	124	101	127	118	91	127	111	83	127	101	64	121	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	136	137	137	129	137	136	122	137	123	110	137	113	93	130	97	81	122	85	60	115	63	53	104	56	84
			Exposed	137	137	136	137	137	127	137	132	119	137	125	112	137	118	101	137	111	92	133	101	85	122	86	60	114	62	52	101	54	81	90	84	59	81	63	52	63	56	47
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	137	142	142	130	142	130	119	139	121	108	127	112	94	118	100	84	107	90	63	94	82	56
			Exposed	142	142	142	142	142	142	142	139	127	142	132	121	142	126	115	138	120	106	131	115	98	119	101	84	105	88	62	90	74	54	72	59	83	58	52	63	52	81	56

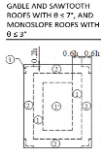
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

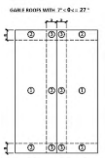
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

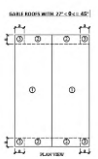
140 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

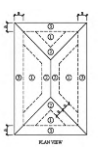












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

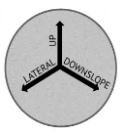
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

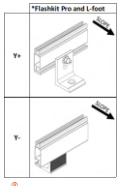
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	104	117	116	94	117	108	85			
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	105	117	115	92	117	105	82	117	95	63	110	86	56	100	77	84
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	114	118	118	100	118	116	88	118	105	75			
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	117	118	118	101	118	115	87	118	100	64	118	88	56	107	72	87	95	59	71
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	122	108	127	115	96			
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	100	127	121	106	127	111	92	127	96	61	122	85	60	115	64	53
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	119	122*	122*	110			
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	120	106	122*	111	93	118	100	84	108	90	64
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	97	117	109	86	117	99	70	114	90	59	104	82	52
			Exposed	117	117	117	117	117	117	117	117	117	112	117	117	103	117	117	96	117	113	89	117	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52			
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	107	118	118	92	118	106	80	118	93	59	113	83	52	100	62	83
			Exposed	118	118	118	118	118	118	118	118	117	118	109	118	118	99	118	117	91	118	111	83	118	94	60	111	82	51	96	60	76	85	52	59	63	82	52	56	62	46	
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	125	113	127	115	97	127	102	85	125	90	63	118	80	56
			Exposed	127	127	127	127	127	127	127	127	127	125	127	127	118	127	124	112	127	118	101	127	103	86	124	88	62	116	65	54	105	57	84	94	50	62	85	78	56			
		27-45	Interior	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	122*	112	122*	115	98	122*	105	88	114	95	75
			Exposed	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	122*	121*	122*	115	122*	116	99	121*	103	86	109	91	64	95	82	56	84	63	87	62	56	72		
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	94	117	117	106	84	117	95	64	110	86	56	99	75	84	91	62	68
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	105	118	118	116	89	118	102	65	118	89	58	101	72	87	94	59	68
			Exposed	118	118	118	118	118	113	118	118	101	118	118	91	118	111	83	118	101	64	118	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	122	129	123	110	129	113	93	129	97	81	122	85	60	115	63	53	104	56	84
			Exposed	129	129	129	129	129	127	129	129	119	129	125	112	129	118	101	129	111	92	129	101	85	122	86	60	114	62	52	101	54	81	90	84	59	81	63	52	63	56	47
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	119	127	121	108	127	112	94	118	100	84	107	90	63	94	82	56
			Exposed	127	127	127	127	127	127	127	127	127	121	127	126	115	127	120	106	127	115	98	119	101	84	105	88	62	90	74	54	72	59	83	58	52	63	52	81	56			
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	104	115	115	94	115	108	85			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114	115	115	88	115	105	75			
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	101	115	115	87	115	100	64	115	88	56	107	72	87	95	59	71
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	108*	113*	113*	96			
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	106*	113*	111*	92	113*	96	81	113*	85	60
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	106*	109*	109*	109*	109*	109*	106*	109*	109*	93	109*	100*	84	108*	90	64
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	110	115	115	97	115	109	86	115	99	70	114	90	59	104	82	52
			Exposed	115	115	115	115	115	115	115	115	115	112	115	115	103	115	115	96	115	113	89	115	99	73	113	89	58	101	79	85	91	62	68	83	55	59	68	82	52			
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	107	115	115	92	115	106	80	115	93	59	113	83	52	100	62	83
			Exposed	115	115	115	115	115	115	115	115	115	109	115	115	99	115	115	91	115	111	83	115	94	60	111	82	51	96	60	76	85	52	59	63	82	52	56	62	46			
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	97	113*	113*	97	113*	102*	85	113*	90	63	113*	80	56			
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	112*	113*	113*	101	113*	103*	86	113*	88	62	113*	65	54	105*	57	84	94	50	62	85	78	56			
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	105*	88	109*	95	75			
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	99*	109*	103*	86	109*	91	64	95	82	56	84	63	87	62	56	72
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	94	117	117	106	84	117	95	64	110	86	56	99	75	84	91	62	68
			Exposed	117	117	117	117	117	114	117	117	105	117	117	96	117	113	89	117	105	83	117	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	105	117	117	92	117	107	82	117	93	59	113	83	52	100	62	83
			Exposed	117	117	117	117	117	113	117	117	101	117	117	91	117	111	83	117	101	64	117	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	118*	110	118*	113*	93	118*	97	81	118*	85	60	115*	63	53	104	56	84
			Exposed	118*	118*	118*	118*	118*	118*	118*	118*	118*	112*	118*	118*	101	118*	111	92	118*	101	85	118*	86	60	114*	62	52	101	54	81	90	84	59	81	63	52	63	56	47			
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	108*	114*	112*	94	114*	100	84	107*	90	63	94	82	56
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	101	84	105*	88	62	90	74	54	72	59	83	58	52	63	52	81	56		
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	104	107	107	94	107	107	85			
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	105	107	107	92	107	105	82	107	95	63	107	86	56	100	77	84
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	100	112*	112*	88	112*	105*	75
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	101	112*	112*	87	112*	100	64	112*	88	56	107*	72	87	95	59	71
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	96*			
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	92*	100*	96*	81	100*	85*	60	100*	64	53
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	93*	94*	94*	84*	94*	90*	64
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	89	107	107	97	107	107	86	107	99	70	107	90	59	104	82	52
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	103	107	107	96	107	107	89	107	99	73	107	89	58	101	79	85	91	62	68	83	55	59	68	82	52			
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	107*	112*	112*	92	112*	106*	80	112*	93	59	111*	83	52	100	62	83
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	109*	112*	112*	99	112*	112*	91	112*	111*	83	112*	94	60	111*	82	51	96	60	76	85	52	59	63	82	52	56	62	46			
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	85*	100*	90*	63	100*	80	56
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	86*	100*	88*	62	100*	65	54	100*	57	84	94*	50	62	85*	78	56
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	88*	94*	94*	75
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	86*	94*	91*	64	94*	94*	84*	94*	94*	72	94*	94*	72
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	109	111	111	94	111	106	84	111	95	64	110	86	56	99	75	84
			Exposed	111	111	111	111	111	111	111	111	105	111	111	96	111	111	89	111	105	83	111	98	69	111	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	115*	114*	115*	115*	105	115*	115*	89	115*	102	65	115*	89	56	107	72	87	94	59	68	84	52	58
			Exposed	115*	115*	115*	115*	115*	115*	113*	115*	101	115*	115*	91	115*	111	83	115*	101	64	115*	93	59	108	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	93*	107*	97*	81	107*	85	60	107*	63	53	104*	56	84
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	101*	107*	107*	92*	107*	107*	85	107*	86	60	107*	62	52	101*	54	81	90	84	59	81	63	52	63	56	47			
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	94*	103*	100*	84	103*	90*	63	94*	82	56
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	98*	103*	101*	84	103*	89*	62	90*	74	54	72	59	83	58	52	63	52	81	56			

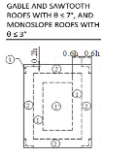
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

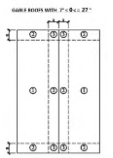
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

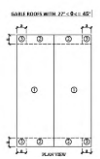
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

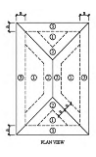












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

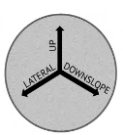
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

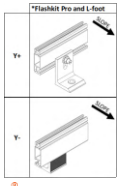
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	85
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	92	98	98	82	98	95	63	98	86	56	98	77	84
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	100*	102*	102*	102*	102*	102*	75
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	101*	102*	102*	87*	102*	100*	64	102*	88*	56	102*	72	87	95*	59	71
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	81*	85*	85*	60	85*	64	53			
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	64
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	97	98	98	86	98	98	70	98	90	59	98	82	52
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	89	98	98	79	85	91	62	68	83	55	59	68	82	52
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	92*	102*	102*	80	102*	93*	59	102*	83	52	100*	62	83
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	91*	102*	102*	83	102*	94*	60	102*	82	51	96*	60	76	85	52	59	63	82	52	56	62	46
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	63	85*	80*	56
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	57	84	85*	50	62	85*	78	56		
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	75*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	64	80*	80*	56	80*	63	87	62	56	72
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	94	103	103	84	103	95	64	103	86	56	99	75	84	91	62	68
			Exposed	103	103	103	103	103	103	103	103	103	103	103	96	103	103	89	103	103	83	103	98	69	103	87	56	98	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	105*	109*	109*	89	109*	102*	65	109*	89	56	107*	72	87	94	59	68	84	52	58
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	101*	109*	109*	91	109*	109*	83	109*	101*	64	109*	93	59	108*	77	88	93	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	81*	93*	85*	60	93*	63	53	93*	56	84
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	92*	93*	93*	85*	93*	86*	60	93*	62	52	93*	54	81	90*	84	59	81*	63	52	63	56	47
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	62	88*	75*	54
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	84*	88*	88*	62	88*	75*	54	75*	59	83	58	52	63	52	81	56
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	85
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	88*	89*	89*	75*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	87*	89*	89*	64*	89*	88*	56	89*	59	71
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	64*	53
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	86	91	91	70	91	90	59	91	82	52
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	89	91	91	89	91	89	85	91	91	62	68	83	55	59	68	82	52
		7-20	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	80*	89*	89*	59	89*	83*	52	89*	62	83
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	83*	89*	89*	60	89*	82*	51	89*	60	76	85*	52	59	63	82	52	56	62	46
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	63*	73*	73*	56
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	62*	73*	65*	54	73*	57	84	73*	50	62	73*	78	56
		27-45	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*	70*	70*	56	70*	63*	87	62*	56	72
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	96	96	84	96	95	64	96	86	56	96	75	84	91	62	68
			Exposed	96	96	96	96	96	96	96	96	96	96	96	96	96	96	89	96	96	83	96	96	69	96	87	56	96	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	89*	98*	98*	65	98*	89*	56	98*	72	87	94*	59	68	84*	52	58
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	91*	98*	98*	83*	98*	98*	64	98*	93*	59	98*	77	88	93*	58	65	81	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	60	81*	63	53	81*	56	84
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	60	81*	62	52	81*	56	47
		27-45	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	63	77*	77*	56
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	74*	54	72*	59	83	58	52	63	52	81	56		
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	63	86	86	56	86	77	84
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	75*
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	56	78*	72*	87	78*	59	71
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	64*	53
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	70	86	86	59	86	82	52
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	73	86	86	58	86	79	85	86	62	68	83	55	59	68	82	52
		7-20	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	59	78*	78*	52	78*	62	83
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	60	78*	78*	51	78*	60	76	78*	52	59	63	82	52	56	62	46
		20-27	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	63*	65*	65*	56*
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	62*	65*	65*	54	65*	57	84*	65*	50	62	65*	78	56
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	87*	62*	56*	72
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	84	90	90	64	90	86	56	90	75	84	90	62	68
			Exposed	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	90	90	83	90	90	69	90	87	56	90	72	83	88	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	65	86*	86*	56	86*	72	87	86*	59	68	84*	52	58
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	83*	86*	86*	64	86*	86*	59	86*	77*	88	86*	58	65	81*	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	60	72*	63*	53	72*	56	84
			Exposed	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	54	81	72*	60	72*	62*	52	63*	56	47
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	56
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	62*	68*	68*	54	68*	59*	83	58*	52	63	52	81	56

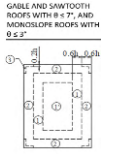
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

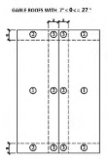
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

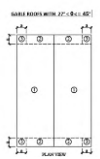
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

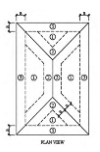












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashkit Pro
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

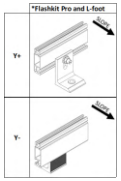
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	63	81	81	56	81	77	84		
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*	70*	70*	56	70*	70*	87	70*	59	71
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
		27-45	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	70	81	81	59	81	81	52		
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	73	81	81	58	81	79	85	81	62	68	81	55	59	68	82	52
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	59	70*	70*	52	70*	62*	83		
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	60*	70*	70*	51	70*	60*	76	70*	52	59	63*	82	52	56	62	46
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*
		27-45	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	73*
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	64	85	85	56	85	75	84	85	62	68
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	83	85	85	69	85	85	56	85	72	83	85	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	65	77*	77*	56	77*	72*	87	77*	59	68	77*	52	58
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	64	77*	77*	59	77*	77*	88	77*	58	65	77*	88	56	60	69	49	53	58	49	83	52	39
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	63*	53	64*	56*	84*
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	60*	64*	62*	52	64*	54	81	64*	84*	59	64*	63	52	63*	56	47
		27-45	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	83*	91*	89*	63	91*	81*	56
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	84
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	56*	63*	63*	63*	63*	59*	71
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	70	77	77	59	77	77	52		
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	73	77	77	58	77	77	85	77	62	68	77	55	59	68	82	52
		7-20	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	59*	63*	63*	52	63*	62*	83*
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	51	63*	60*	76	63*	52	59	63*	82*	52	56*	62	46
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	63	79*	78*	56
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	64	81	81	56	81	75	84	81	62	68
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	69	81	81	56	81	72	83	81	59	63	79	85	55	62	74	49	55	61	44
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	70*	56	70*	70*	87	70*	59	68	70*	52	58
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	64*	70*	70*	59	70*	70*	88	70*	58	65	70*	88	56	60*	69	49	53	58	49	83	52	39
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	84*
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	85*	59	87*	63	52	87*	56	47
		27-45	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*
			Exposed	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	63	83*	81*	56

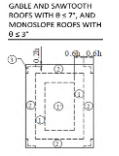
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

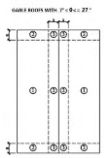
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

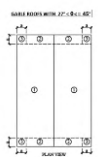
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

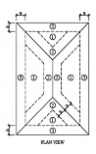












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

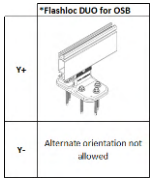
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	34	34	32	34	34	28	34	34	25	34	33	23	34	30	20	34	27	19	34	24	17	29	20	14	24	17	12	21	15	10	18	13	9	16	11	8	14	10	7
			Exposed	34	29	20	34	26	18	33	23	16	29	21	15	26	19	13	24	17	12	22	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	4
		7-20	Interior	34	34	28	34	34	25	34	30	22	34	27	20	34	25	18	31	22	16	28	20	15	24	17	12	20	14	11	17	12	9	15	11	8	13	10	7	12	8	6
			Exposed	34	24	18	30	22	16	27	19	14	24	17	13	22	16	12	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	4	7	5	6
		20-27	Interior	34	34	34	34	34	30	34	33	27	34	30	24	34	27	22	34	24	20	34	22	18	32	18	15	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7
			Exposed	34	27	22	34	24	19	34	21	17	33	19	15	30	17	14	27	16	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	35	35	35	35	35	35	35	35	32	35	35	29	35	33	26	34	30	24	31	28	22	26	23	18	22	20	16	19	17	13	17	15	12	15	13	10	13	12	9
			Exposed	35	33	26	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	34	31	22	34	28	19	34	25	17	31	22	15	28	20	14	25	18	13	23	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	28	20	14	25	18	12	22	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	7	4	8	6	6	7	5	5	6	5	5
		7-20	Interior	34	26	19	32	23	17	29	21	15	26	18	14	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	23	17	12	21	15	11	18	13	10	16	12	9	15	11	8	14	10	7	12	9	6	10	7	5	9	6	4	7	5	6	6	4	5	5	6	4	5	5	4
		20-27	Interior	34	28	23	34	25	20	34	22	18	34	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	32	18	15	28	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	5	10	6	5	9	5	5	8	5	4	7	4	4
		27-45	Interior	35	35	28	35	31	25	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	23	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	4	6	5	5
	D	0-7	Interior	34	26	18	32	23	16	28	20	14	26	18	13	23	16	12	21	15	10	19	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	23	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	30	21	16	26	19	14	24	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	5	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	4	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	34	23	19	34	21	17	32	18	15	29	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	33	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
10	B	0-7	Interior	27	27	27	27	27	27	27	27	26	27	27	23	27	27	20	27	27	19	27	24	17	27	20	14	24	17	12	21	15	10	18	13	9	16	11	8	14	10	7
			Exposed	27	27	20	27	26	18	27	23	16	27	21	15	26	19	13	24	17	12	22	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	4
		7-20	Interior	28	28	28	28	28	25	28	28	22	28	27	20	28	25	18	28	22	16	28	20	15	24	17	12	20	14	11	17	12	9	15	11	8	13	10	7	12	8	6
			Exposed	28	24	18	28	22	16	27	19	14	24	17	13	22	16	12	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	4	7	5	6
		20-27	Interior	32	32	32	32	32	30	32	32	27	32	30	24	32	27	22	32	24	20	32	22	18	32	18	15	28	16	13	24	14	11	20	12	10	18	10	8	16	9	7
			Exposed	32	27	22	32	24	19	32	21	17	32	19	15	30	17	14	27	16	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	34	34	34	34	34	34	34	34	32	34	34	29	34	33	26	34	30	24	31	28	22	26	23	18	22	20	16	19	17	13	17	15	12	15	13	10	13	12	9
			Exposed	34	33	26	33	30	23	30	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	27	27	22	27	27	19	27	25	17	27	22	15	27	20	14	25	18	13	23	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	27	20	14	25	18	12	22	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	7	4	8	6	6	7	5	5	6	5	5
		7-20	Interior	28	26	19	28	23	17	28	21	15	26	18	14	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	23	17	12	21	15	11	18	13	10	16	12	9	15	11	8	14	10	7	12	9	6	10	7	5	9	6	5	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	32	28	23	32	25	20	32	22	18	32	20	16	32	18	15	29	16	13	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	32	18	15	28	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	4	6	7	6	5
		27-45	Interior	34	34	28	34	31	25	31	28	22	28	25	20	25	23	18	23	21	16	21	19	15	18	16	12	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	23	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	4	6	5	5
	D	0-7	Interior	27	26	18	27	23	16	27	20	14	26	18	13	23	16	12	21	15	10	19	14	10	16	11	8	14	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	23	16	11	20	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	28	21	16	28	19	14	28	17	12	21	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	5	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	4	7	5	6	6	4	5	5	6	4	5	5	3	6	5	3
		20-27	Interior	32	23	19	32	21	17	32	18	15	29	17	14	26	15	12	24	14	11	22	12	10	18	10	9	15	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	25	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	9	5	6	7	5	6	7	6	5	7	6	5	6	5	4
		27-45	Interior	33	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
20	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	20	14	20	17	12	20	15	10	18	13	9	16	11	8	14	10	7
			Exposed	20	20	20	20	20	18	20	20	16	20	20	15	20	19	13	20	17	12	20	16	11	18	13	9	15	11	8	13	10	7	12	8	6	10	7	5	9	6	4
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	15	20	17	12	20	14	11	17	12	9	15	11	8	13	10	7	12	8	6
			Exposed	20	20	18	20	20	16	20	19	14	20	17	13	20	16	12	20	14	10	18	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	4	7	5	6
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	24	20	25	22	18	25	18	15	25	16	13	24	14	11	20	12	10	18	10	8	16	9	7
			Exposed	25	25	22	25	24	19	25	21	17	25	19	15	25	17	14	25	16	13	25	14	12	21	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	28	22	26	23	18	22	20	16	19	17	13	17	15	12	15	13	10	13	12	9
			Exposed	28	28	26	28	28	23	28	26	21	27	24	19	24	21	17	22	19	15	20	18	14	17	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	20	20	20	20	20	19	20	20	17	20	20	15	20	20	14	20	18	13	20	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	5	9	7	5
			Exposed	20	20	14	20	18	12	20	16	11	20	14	10	18	13	9	16	12	8	15	11	7	12	9	6	11	8	5	9	7	4	8	6	6	7	5	5	6	7	5
		7-20	Interior	20	20	19	20	20	17	20	20	15	20	18	14	20	17	12	20	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
			Exposed	20	17	12	20	15	11	18	13	10	16	12	9	15	11	8	14	10	7	12	9	6	10	7	5	9	6	5	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	25	25	23	25	25	20	25	22	18	25	20	16	25	18	15	25	16	13	25	15	12	22	13	10	19	11	9	16	9	8	14	8	7	12	7	6	11	6	5
			Exposed	25	18	15	25	16	13	25	14	12	22	13	11	20	12	10	18	11	9	17	10	8	14	8	7	12	7	6	10	6	5	9	5	7	8	4	6	7	6	5
		27-45	Interior	25	25	23	25	25	23	25	25	18	25	23	18	25	21	16	25	21	16	25	19	15	18	16	12	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	25	23	18	23	20	16	20	18	14	18	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	4	6	5	5
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		7-20	Interior	20	20	16	20	19	14	20	17	12	20	15	11	19	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	5	7	5	5
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		27-45	Interior	29	29	23	29	26	20	26	23	18	23	21	16	21	19	15	19	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	9	7	6	7	6	5
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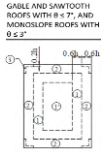
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

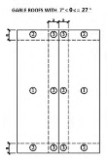
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

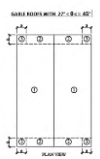
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

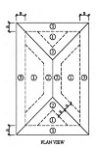












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

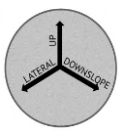
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

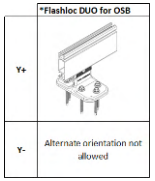
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	18	22	20	16	19	17	13	17	15	12	15	13	10	13	12	9
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		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	9	13	11	8	13	10	7	12	8	6
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		27-45	Interior	19	19	19	19	19	19	19	19	18	18	18	16	18	18	15	17	17	13	17	16	12	15	13	10	13	11	9	11	10	8	9	8	7	9	7	6	7	6	5
			Exposed	19	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5

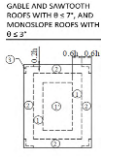
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

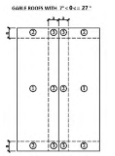
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

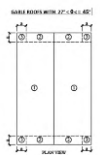
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

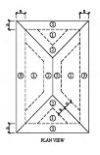












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

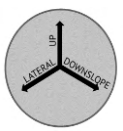
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

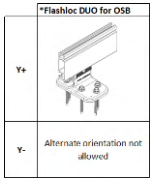
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	8	11	9	7	11	8	6	10	7	5	8	6	4	7	5	6
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		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	5	8	6	6
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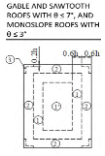
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

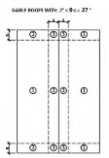
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

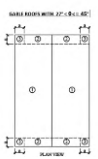
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

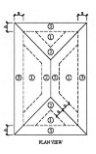












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

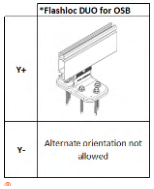
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	4	7	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	4	7	5	6
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	10	10	10	9
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	4	7	6	6	7	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	5	6	6	7	5	5	6	5	5	6	4
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7	9	7	6	9	6	5	9	5	7	8	4	6	7	6	5
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	10	10	10	9	10	10	8	9	9	7	9	8	6
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	10	8	10	8	7	8	8	6	7	7	5	6	6	4	6	5	6	6	5	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	7	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	7	5	8	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	4	7	5	5	7	5	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	7	5	8	6	4	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	10	8	6	9	7	5	9	6	5	9	5	6
			Exposed	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	7	10	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	11	10	11	11	9	10	10	8	9	8	7	8	7	6	7	6	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	12	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
100	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	4	7	5	6
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	6	5
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	9	8	7	8	7	6	8	7	6
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	4	6	6	6	6	5	5	6	7	5
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	5	7	5	6	7	7	5	5	6	4	6	6	4
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	6	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	4	7	6	4
		27-45	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	8	9	9	7	8	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	8	8	6	7	7	5	6	6	4	6	5	6
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	7	5	7	6	6	7	6	6
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	4	7	5	5	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	4	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	5	8	5	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	5	9	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	10	10	10	9	9	9	8	9	8	7	8	7	6	7	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	11	11	10	11	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5

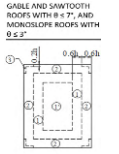
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

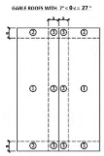
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

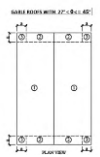
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

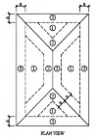












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

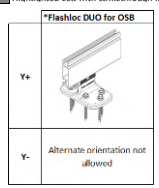
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	54	56	56	48	56	56	43	56	56	38	56	50	35	56	45	31	56	41	29	48	35	24	41	29	21	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	56	50	35	56	44	31	55	39	27	50	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	11	20	14	10	17	13	9	15	11	8
		7-20	Interior	56	56	47	56	56	42	56	52	37	56	46	34	56	42	30	53	38	28	48	34	25	40	29	21	34	25	18	29	21	16	26	18	14	22	16	12	20	14	11
			Exposed	56	41	30	51	37	27	46	33	24	41	30	22	37	27	20	34	24	18	31	22	16	26	19	14	22	16	12	19	14	10	17	12	9	15	11	8	13	9	10
		20-27	Interior	57	57	57	57	57	51	57	56	46	57	50	41	57	45	37	57	41	34	57	37	31	55	31	26	47	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	57	45	37	57	40	33	57	36	29	56	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	58	58	58	58	58	58	58	58	54	58	58	49	58	56	44	57	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
			Exposed	58	56	44	56	50	39	50	45	35	45	40	32	41	36	29	37	33	26	34	30	24	28	25	20	24	22	17	21	19	15	18	16	13	16	14	11	14	13	10
	C	0-7	Interior	56	53	37	56	47	33	56	42	29	53	38	26	47	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
			Exposed	47	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	9	16	11	8	14	10	10	12	9	9	10	12	8
		7-20	Interior	56	44	32	55	39	29	49	35	26	44	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
			Exposed	39	28	21	35	25	18	31	22	17	28	20	15	25	18	13	23	17	12	21	15	11	18	13	9	15	11	8	13	9	11	11	8	9	10	11	8	9	10	~~7~~
		20-27	Interior	57	48	39	57	42	35	57	38	31	57	34	28	54	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
			Exposed	54	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	16	14	24	14	11	20	12	10	18	10	8	15	9	11	14	8	10	12	11	9
		27-45	Interior	58	58	47	58	53	41	53	47	37	48	43	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	17	14	17	15	12	14	13	10	13	11	9	11	10	8	10	9	11
	D	0-7	Interior	56	43	30	54	39	27	48	34	24	43	31	22	39	28	20	35	25	18	32	23	16	27	20	14	23	17	12	20	14	10	17	13	9	15	11	8	13	10	10
			Exposed	39	28	20	34	25	17	31	22	16	28	20	14	25	18	13	23	16	12	21	15	11	17	13	9	15	11	12	13	9	10	11	8	9	10	11	8	9	10	~~7~~
		7-20	Interior	51	36	27	45	32	24	40	29	21	36	26	19	32	23	17	29	21	16	27	19	14	23	16	12	19	14	10	17	12	9	15	11	8	13	9	10	11	8	9
			Exposed	32	23	17	29	21	15	26	19	14	23	17	12	21	15	11	19	14	10	17	13	9	15	11	8	13	9	10	11	8	9	9	10	8	8	9	~~7~~	11	8	~~6~~
		20-27	Interior	57	39	32	57	35	29	55	31	26	49	28	23	44	25	21	40	23	19	37	21	17	31	18	15	26	15	12	23	13	11	20	11	9	17	10	8	15	9	11
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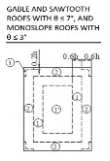
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

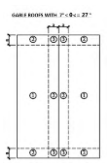
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

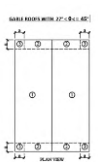
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

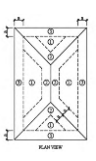












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

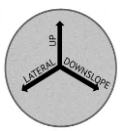
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

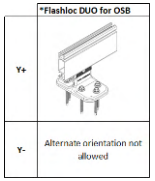
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	31	26	34	27	22	34	23	19	34	20	16	30	18	14	27	16	13
			Exposed	34	34	34	34	34	33	34	34	29	34	32	26	34	29	24	34	26	22	34	24	20	34	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
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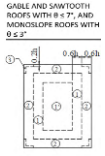
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

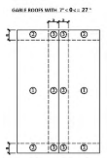
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

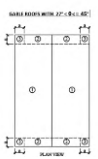
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

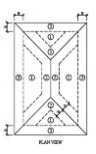












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

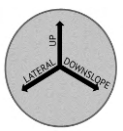
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

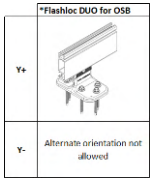
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	14	11	14	13	9	14	11	8	14	10	11			
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		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	11	17	17	12	17	15	10	17	15	9	11	14	8	10	12	11
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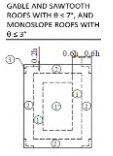
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

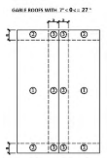
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

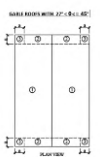
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

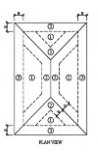












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

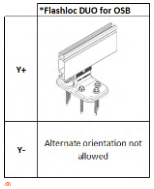
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	17	17	17	15
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		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	11
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		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	13
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		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	11	9
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		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	28	28	27	27	27	26	26	24	25	25	21	24	23	18	23	21	16
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	28	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	8	12	10	10
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		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	12	15	13	11	15	11	9	14	10	8	14	9	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	11	15	12	9	15	10	8	15	8	11	13	11	9	11	10	8	10	9	7
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19	18	18	18	18	18	18	17	17	15	16	16	13	15	14	11	14	13	10	13	11	9
			Exposed	20	20	20	20	20	20	20	20	20	20	20	18	19	19	16	19	19	15	18	17	14	16	15	11	14	12	10	12	11	8	10	9	11	9	8	10	8	11	9

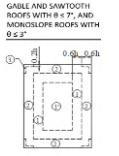
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

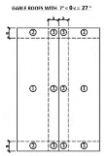
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

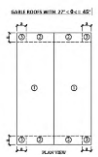
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

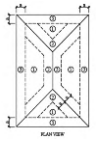












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Orientation	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

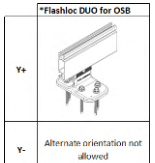
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	28	28	27	28	28	24	28	28	21	28	27	19	28	25	17	28	22	15	28	20	14	24	17	12	20	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	28	25	17	28	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	6	11	8	6	10	7	5	8	6	6	7	5	6
		7-20	Interior	28	28	23	28	28	21	28	25	18	28	23	17	28	21	15	26	19	14	24	17	12	20	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	4	5
		20-27	Interior	29	29	28	29	29	25	29	28	22	29	25	20	29	22	18	29	20	16	29	18	15	27	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	29	22	18	29	20	16	29	18	14	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	4	8	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	26	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	29	28	22	28	25	19	25	22	17	22	20	16	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	28	26	18	28	23	16	28	21	14	26	18	13	23	17	12	21	15	10	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	4	8	6	6
			Exposed	23	17	12	21	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	4	8	5	6	7	5	5	6	4	4	5	6	4
		7-20	Interior	28	22	16	27	19	14	24	17	12	21	15	11	19	14	10	18	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	6	7	5	5
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			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	6	5	9	5	4	8	5	4
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		20-27	Interior	26	26	26	26	26	25	26	26	22	26	25	20	26	22	18	26	20	16	26	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
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	D	0-7	Interior	23	21	15	23	19	13	23	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
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		7-20	Interior	23	22	16	23	20	14	23	18	13	23	17	12	23	16	11	21	15	10	19	13	9	16	11	8	13	10	7	11	8	6	9	7	5	8	6	6	7	5	5
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		20-27	Interior	26	26	26	26	26	25	26	26	22	26	25	20	26	22	18	26	20	16	26	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
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	D	0-7	Interior	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
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		7-20	Interior	17	17	13	17	16	12	17	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	4	5	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	8	6	4	7	5	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3	5	4	3
		20-27	Interior	22	19	16	22	17	14	22	15	13	22	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	4	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	4	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	24	24	19	24	22	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4

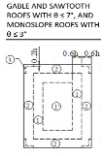
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

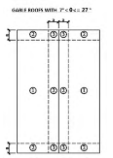
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

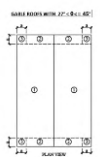
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

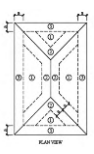












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

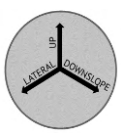
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

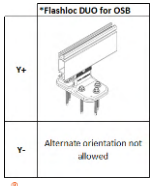
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	7	13	9	7	12	8	6
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		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	10	8	12	9	7	11	8	6	10	7	5	8	6	5
			Exposed	14	14	14	14	14	13	14	14	12	14	14	11	14	13	10	14	12	9	14	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	4	5
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	15	13	17	13	11	17	11	9	17	10	8	15	9	7	13	8	6
			Exposed	17	17	17	17	17	16	17	17	14	17	16	13	17	14	12	17	13	11	17	12	10	17	10	8	15	8	7	13	7	6	11	8	5	10	5	4	8	5	6
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	19	19	19	19	19	19	19	19	17	19	19	16	19	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
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		7-20	Interior	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	6	7	5	5
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		20-27	Interior	17	17	17	17	17	17	17	17	15	17	17	14	17	15	12	17	14	11	17	12	10	17	10	9	16	9	7	13	8	6	12	7	5	10	6	5	9	5	6
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		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
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		27-45	Interior	16	16	16	16	16	16	16	16	15	15	15	14	15	15	12	14	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	7
			Exposed	16	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4

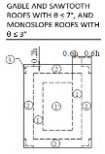
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

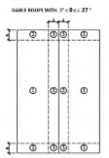
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

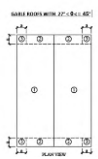
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

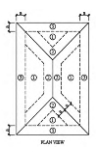












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

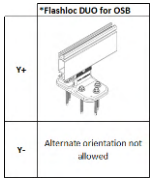
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	6	7	5	6	9	7	5	8	6	5
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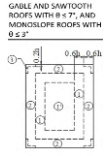
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

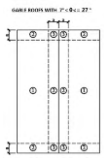
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

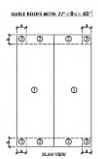
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

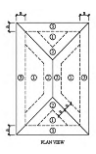












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

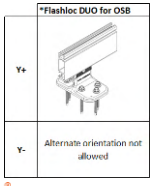
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	6
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	13	13	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	8	13	8	7	13	7	6
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	13	13	13	13	13	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	4	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	6	5	5	6	6	4	5	6	4	5	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	4	6	5	6	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	4	6	5	6	4	5	6	4	5	5	4	5	6	4	5	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	12	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	8	13	9	7	13	8	6	11	7	5	10	6	5	9	5	4
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	13	13	13	13	13	12	12	12	10	12	11	9	11	10	8
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5
	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	6	7	5	6	6	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	7	7	5	6	6	4	5	5	6	4	5	5	4	6	5	4	3
		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	6	6	4	5	5	6	4	5	5	4
			Exposed	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	5	7	6	4	7	5	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	5	4	8	5	6	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	7	6	8	7	5	8	6	4	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	17	17	17	16	16	16	15	15	13	14	14	11	14	12	10	12	11	8	11	9	7	9	8	7
			Exposed	18	18	18	18	18	17	18	18	15	17	17	13	17	16	12	16	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
100	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	6	5	4	5	5	5
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	8	7	10	7	6
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	12	11	8	11	9	7
	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	6	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	4	5	5	4	5	6	4
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	6	5	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	8	6	10	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	8	6	10	7	5	10	6	5	9	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	11	11	10	8	9	8	7	10	10	8
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5
	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	6	5	6	5	5	6	5	5	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	5	4	5	5	4	5	5	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	4	6	5	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	8	7	12	7	6	11	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	5	9	5	4	8	5	4	7	4	3
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	11	12	12	10	11	11	8	11	9	7	9	8	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	14	14	12	14	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4

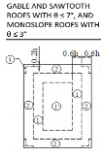
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

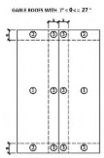
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

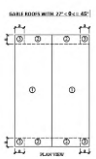
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

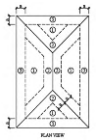












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

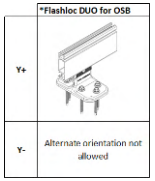
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	55	55	53	55	55	47	55	55	42	55	54	38	55	49	34	55	44	31	55	40	28	47	34	24	40	29	20	34	25	17	30	22	15	26	19	13	23	17	12
			Exposed	55	49	34	55	43	30	54	39	27	48	35	24	44	31	22	40	28	20	36	26	18	30	22	15	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	55	55	46	55	55	41	55	50	37	55	45	33	55	41	30	52	37	27	47	34	25	39	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	55	41	30	50	36	26	45	32	24	40	29	21	36	26	19	33	24	17	30	22	16	25	18	13	22	16	11	19	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	56	56	56	56	56	50	56	55	45	56	49	40	56	44	36	56	40	33	56	36	30	54	31	25	46	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	56	44	36	56	39	32	56	35	29	55	31	26	50	28	23	45	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	57	57	57	53	57	57	48	57	55	43	56	50	39	51	46	36	43	38	30	37	33	26	32	28	22	28	25	19	24	22	17	21	19	15
			Exposed	57	55	43	55	49	38	49	44	34	44	39	31	40	36	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	55	52	36	55	46	32	55	41	28	51	37	26	46	33	23	42	30	21	38	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	46	33	23	41	29	20	36	26	18	33	24	17	30	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	8	9	10	11	8
		7-20	Interior	55	43	31	53	38	28	48	34	25	43	31	22	38	28	20	35	25	18	32	23	17	27	19	14	23	17	12	20	14	10	17	12	9	15	11	8	13	10	11
			Exposed	38	28	20	34	25	18	30	22	16	27	20	15	25	18	13	22	16	12	21	15	11	17	13	9	15	11	8	13	9	10	11	8	9	10	11	8	9	10	7
		20-27	Interior	56	47	38	56	41	34	56	37	30	56	33	27	53	30	25	48	27	22	43	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	52	30	25	46	27	22	41	24	20	37	21	18	34	19	16	31	18	15	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	57	57	46	57	52	41	52	46	36	47	42	33	42	38	30	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	24	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	55	43	30	53	38	26	47	34	24	42	30	21	38	27	19	35	25	17	31	23	16	26	19	13	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10
			Exposed	38	27	19	34	24	17	30	22	15	27	20	14	24	18	12	22	16	11	20	15	10	17	12	9	15	11	11	13	9	10	11	12	9	10	11	7	8	9	7
		7-20	Interior	49	35	26	44	32	23	39	28	21	35	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	8	9
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		20-27	Interior	56	38	31	56	34	28	54	31	25	48	27	23	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	8	15	9	11
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		7-20	Interior	33	33	26	33	32	23	33	28	21	33	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	8	9
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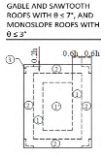
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

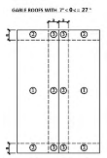
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

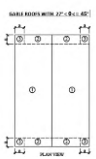
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

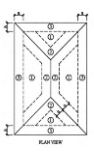












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

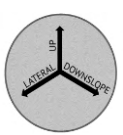
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

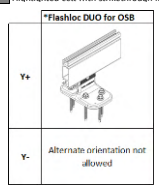
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	30	36	33	26	32	28	22	28	25	19	24	22	17	21	19	15
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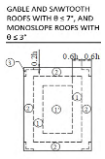
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

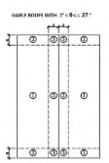
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

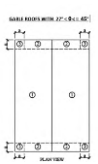
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

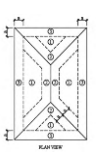












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

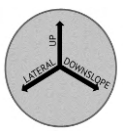
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

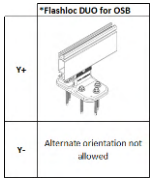
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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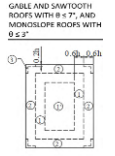
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

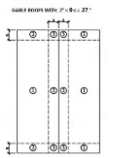
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

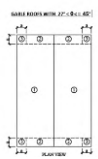
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

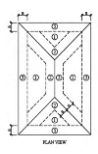












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

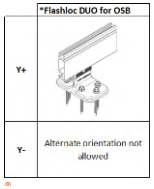
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	27	27	27	26	26	26	25	25	23
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		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	11
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		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	19	25	19	16	24	17	14	23	15	12	22	13	11
			Exposed	25	25	25	25	25	25	25	25	25	22	25	24	20	25	22	18	25	20	17	25	17	14	25	15	12	22	13	10	19	11	9	17	10	8	15	9	7		
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	27	27	27	26	26	26	25	25	22	24	24	19	22	21	17	21	19	15	19	17	13
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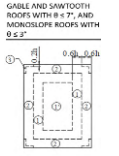
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

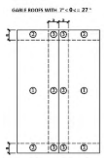
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

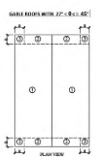
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

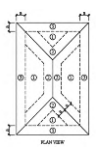












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

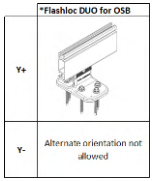
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	34	26	19	32	23	17	29	21	15	26	18	14	23	17	12	21	15	11	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	5	8	6	6
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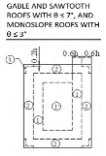
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

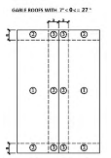
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

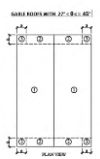
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

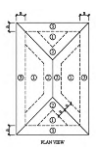












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

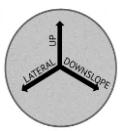
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

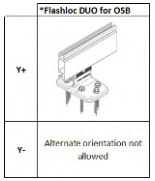
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	16	16	16	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	13	10	15	11	8	13	9	7	11	8	6	10	7	5	8	6	4	7	5	6
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	18	15	20	16	13	20	14	11	20	12	10	18	10	8	16	9	7	
			Exposed	20	20	20	20	20	19	20	20	17	20	19	15	20	17	14	20	16	13	20	14	12	20	12	10	18	10	8	15	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	18	22	20	16	19	17	13	17	15	12	15	13	10	13	12	9
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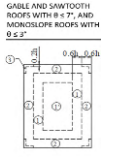
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

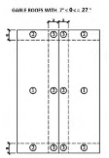
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

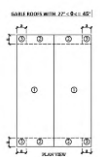
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

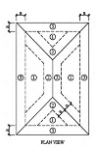












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

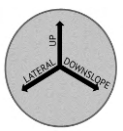
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

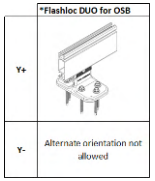
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	9	6	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	8	6
			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	8	11	9	7	11	8	6	10	7	5	8	6	4	7	5	6
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	13	9	7
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	10	13	13	10	13	10	8	13	9	7	13	8	6	12	7	5	10	6	5
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	13	14	14	12	13	12	10	13	12	9
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	15	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	9	6	11	8	5	9	7	5
			Exposed	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	11	8	11	11	7	11	9	6	11	8	5	9	7	4	8	6	6	7	5	5	6	5
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	9	6	5	8	6
			Exposed	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	9	6	10	7	5	9	6	5	8	5	6	7	5	5	6	6	5	5	6	4
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	11	9	13	9	8	12	8	7	12	7	6	11	6	5
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		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	15	14	14	12	13	13	11	13	12	9	11	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	14	16	16	13	16	15	12	15	13	10	14	12	10	11	10	8	10	9	7	8	8	6	7	7	5	6	6	4	6	5	6
	D	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	12	10	12	11	8	12	10	7	12	8	6	10	7	5	9	6	7	8	6	6
			Exposed	12	12	11	12	12	10	12	12	9	12	12	8	12	11	7	12	10	7	12	9	6	10	7	5	9	6	7	7	5	6	6	5	5	6	6	4	5	6	4
		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	8	12	10	7	11	8	6	10	7	5	8	6	4	7	5	6	7	5	5
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		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	11	14	12	10	14	10	9	13	9	7	13	8	6	12	7	5	10	6	5	9	5	6
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		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	16	16	16	15	16	16	13	15	15	12	14	13	10	13	11	9	11	10	8	10	8	7	8	7	6	7	6	5
			Exposed	17	17	15	17	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5
70	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6
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		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	12	12	12	10	12	12	9
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	9	6	9	8	5	9	7	5
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	4	7	5	4
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		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	8	6	10	7	5	8	6	4	7	5	6	7	5
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		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	9	12	9	7	12	8	6	11	7	5	10	6	5	9	5	6
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		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	13	14	14	12	13	13	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5
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80	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8
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			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	12	11	9	11	10	8	9	8	7	8	7	6
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	5
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		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6
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		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	9	8	10	8	7	10	8	6
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		27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	7	8	6	6
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	D	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	6
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	8	6	4	7	5	6	7	5
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			Exposed	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	11	8	7	11	7	5	10	6	5	9	5	6	7	5	7	6	5	9	5	6	5	4
		27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	12	12	12	10	11	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	14	14	14	14	14	13	14	14	12	14	13	11	13	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5

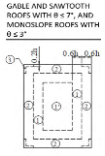
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

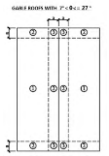
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

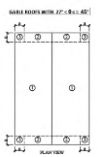
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

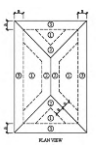












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

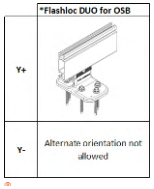
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
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		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
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		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	7
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		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5
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		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	7	5	8	6	5
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		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	4	7	5	5	7	5	5
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		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	5	8	6	5	8	5	6
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	7	9	7	5	9	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	10	10	10	10	10	9	9	9	8	9	8	7	8	7	6	7	6	5
			Exposed	12	12	12	12	12	12	12	12	12	12	12	11	11	11	10	11	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	7	5	5	6	5	6	5

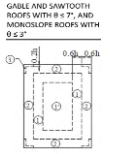
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

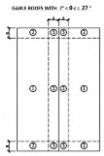
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

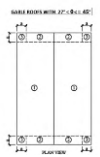
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

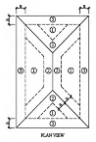












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

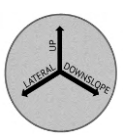
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

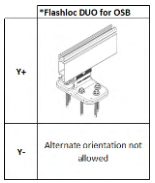
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	56	56	54	56	56	48	56	56	43	56	56	38	56	50	35	56	45	31	56	41	29	48	35	24	41	29	18	35	25	18	31	22	15	27	19	14	24	17	12
			Exposed	56	50	35	56	44	31	55	39	27	50	35	25	45	32	22	40	29	20	37	26	19	31	22	16	26	19	13	23	16	11	20	14	10	17	13	9	15	11	8
		7-20	Interior	56	56	47	56	56	42	56	52	37	56	46	34	56	42	30	53	38	28	48	34	25	40	29	21	34	25	18	29	21	16	26	18	14	22	16	12	20	14	11
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		20-27	Interior	57	57	57	57	57	51	57	56	46	57	50	41	57	45	37	57	41	34	57	37	31	55	31	26	47	27	22	40	23	19	35	20	16	30	18	14	27	16	13
			Exposed	57	45	37	57	40	33	57	36	29	56	32	26	51	29	24	46	26	22	42	24	20	35	20	17	30	17	14	26	15	12	22	13	11	20	11	9	17	10	8
		27-45	Interior	58	58	58	58	58	58	58	58	54	58	58	49	58	56	44	57	51	40	52	47	37	44	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
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	C	0-7	Interior	56	53	37	56	47	33	56	42	29	53	38	26	47	34	24	43	31	21	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	9	16	12	8
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		7-20	Interior	56	44	32	55	39	29	49	35	26	44	31	23	39	28	21	36	26	19	32	23	17	27	20	15	23	17	12	20	15	11	17	13	9	15	11	8	14	10	11
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		20-27	Interior	57	48	39	57	42	35	57	38	31	57	34	28	54	31	25	49	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	18	11	9
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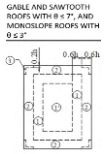
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

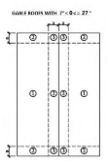
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

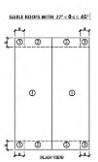
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

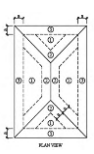












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

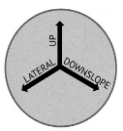
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

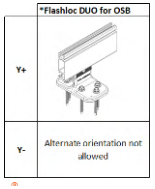
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	31	26	34	27	22	34	23	19	34	20	16	30	18	14	27	16	13
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		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	31	37	33	26	32	29	23	28	25	20	25	22	17	22	20	15
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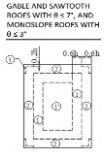
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

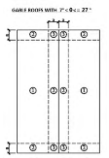
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

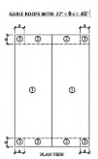
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

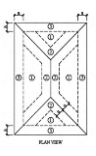












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

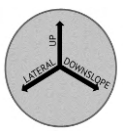
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

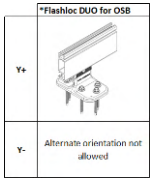
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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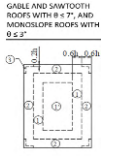
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

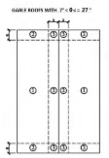
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

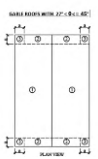
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

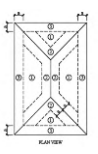












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

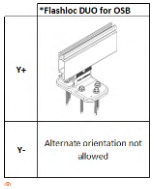
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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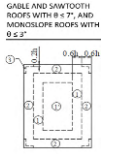
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

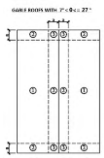
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

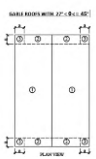
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

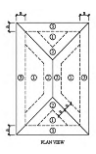












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Orientation	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

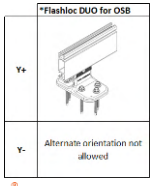
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	28	28	27	28	28	24	28	28	21	28	27	19	28	25	17	28	22	15	28	20	14	24	17	12	20	14	10	17	12	9	15	11	7	13	9	7	12	8	6
			Exposed	28	25	17	28	22	15	27	19	13	24	17	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	6	11	8	6	10	7	5	8	6	6	7	5	6
		7-20	Interior	28	28	23	28	28	21	28	25	18	28	23	17	28	21	15	26	19	14	24	17	12	20	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	28	20	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	4	5
		20-27	Interior	29	29	28	29	29	25	29	28	22	29	25	20	29	22	18	29	20	16	29	18	15	27	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	29	22	18	29	20	16	29	18	14	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	4	8	5	6
		27-45	Interior	29	29	29	29	29	29	29	29	27	29	29	24	29	28	22	28	25	20	26	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
			Exposed	29	28	22	28	25	19	25	22	17	22	20	16	20	18	14	18	16	13	17	15	12	14	12	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5
	C	0-7	Interior	28	26	18	28	23	16	28	21	14	26	18	13	23	17	12	21	15	10	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	4	8	6	6
			Exposed	23	17	12	21	15	10	18	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	4	8	5	6	7	5	5	6	4	4	5	4	4
		7-20	Interior	28	22	16	27	19	14	24	17	12	21	15	11	19	14	10	18	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	6	7	5	5
			Exposed	19	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	4	7	5	6	6	4	5	5	6	4	5	5	6	6	4	5
		20-27	Interior	29	23	19	29	21	17	29	19	15	29	17	14	27	15	12	24	14	11	22	12	10	18	10	9	16	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	26	15	12	23	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	6	5	9	5	4	8	5	4
		27-45	Interior	29	29	23	29	26	20	26	23	18	24	21	16	21	19	15	19	17	14	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	21	19	15	19	17	13	17	15	12	15	13	11	14	12	10	12	11	9	11	10	8	10	8	7	8	7	6	7	6	5	6	5	5	7	5	5	6	5	5
	D	0-7	Interior	28	21	15	27	19	13	24	17	12	21	15	11	19	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	19	14	10	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	25	18	13	22	16	12	20	14	10	18	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	4	5	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	4	7	5	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3
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		27-45	Interior	27	24	19	24	22	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4
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			Exposed	23	20	15	23	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	4	5
		20-27	Interior	26	26	26	26	26	25	26	26	22	26	25	20	26	22	18	26	20	16	26	18	15	26	15	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
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		27-45	Interior	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	25	20	26	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
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	C	0-7	Interior	23	23	18	23	23	16	23	21	14	23	18	13	23	17	12	21	15	10	19	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	4	8	6	6
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		7-20	Interior	23	18	13	22	16	12	20	14	10	18	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	4	5	5	6	4
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		20-27	Interior	22	19	16	22	17	14	22	15	13	22	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	4	8	5	6	7	7	5
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		27-45	Interior	24	24	19	24	22	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4
20	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	14	10	17	12	9	15	11	7	13	9	7	12	8	6
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	12	17	14	10	17	12	9	14	10	8	12	9	7	11	8	6	10	7	5
			Exposed	17	17	15	17	17	13	17	16	12	17	15	11	17	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	5	8	6	6	7	5	6	6	4	5
		20-27	Interior	21	21	18	21	20	16	21	18	14	21	16	13	21	14	12	21	13	11	21	12	10	17	10	8	15	8	7	13	7	6	11	6	5	10	5	4	8	5	6
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		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	22	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
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	C	0-7	Interior	17	17	17	17	17	16	17	17	14	17	17	13	17	17	12	17	15	10	17	14	10	16	12	8	14	10	7	12	8	6	10	7	5	9	6	4	8	6	6
			Exposed	17	17	12	17	15	10	17	13	9	16	12	8	15	11	7	13	10	7	12	9	6	10	7	5	9	6	4	8	5	6	7	5	5	6	6	4	8	5	4
		7-20	Interior	17	17	16	17	17	14	17	17	12	17	15	11	17	14	10	17	13	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	6	7	5	5
			Exposed	17	14	10	17	12	9	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	9	6	4	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	21	21	19	21	21	17	21	19	15	21	17	14	21	15	12	21	14	11	21	12	10	18	10	9	16	9	7	13	8	6	12	7	5	10	6	5	9	5	6
			Exposed	21	15	12	21	13	11	21	12	10	19	11	9	17	10	8	15	9	7	14	8	7	12	7	5	10	6	5	9	5	6	7	7	5	7	6	5	6	5	4
		27-45	Interior	23	23	23	23	23	20	23	23	18	23	21	16	21	19	15	19	17	14	18	16	12	15	13	10	13	11	9	11	10	8	9	8	7	8	7	6	7	6	5
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4
	D	0-7	Interior	17	17	15	17	17	13	17	17	12	17	15	11	17	14	10	17	12	9	16	11	8	13	10	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	17	14	10	17	12	8	15	11	8	14	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	17	17	13	17	16	12	17	14	10	17	13	9	16	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	6	7	7	5	6	6	4	5	6	4
			Exposed	16	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	4	7	5	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3
		20-27	Interior	22	19	16	22	17	14	22	15	13	22	14	11	22	12	10	20	11	9	18	10	8	15	9	7	13	7	6	11	6	5	10	5	4	8	5	6	7	7	5
			Exposed	22	12	10	19	11	9	17	10	8	15	9	7	14	8	7	13	7	6	12	7	5	10	6	4	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	24	24	19	24	22	17	22	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	17	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4

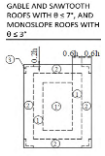
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

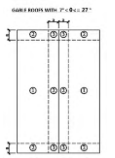
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

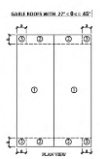
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

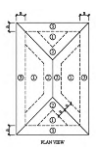












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

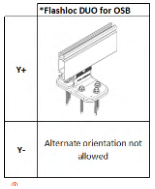
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	12	9	13	11	7	13	9	7	12	8	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	13	9	13	11	8	13	9	6	11	8	6	10	7	5	8	6	6	7	5	6
		7-20	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	10	14	10	8	12	9	7	11	8	6	10	7	5	8	6	5
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		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15	17	15	13	17	13	11	17	11	9	17	10	8	15	9	7	13	8	6
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		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	18	16	13	16	14	11	14	12	10	12	11	8	11	10	7
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			Exposed	13	13	12	13	13	10	13	13	9	13	12	8	13	11	7	13	10	7	12	9	6	10	7	5	9	6	4	8	5	6	7	5	5	6	4	4	5	4	4
		7-20	Interior	14	14	14	14	14	14	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	6	7	5	5
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		20-27	Interior	17	17	17	17	17	17	17	17	15	17	17	14	17	15	12	17	14	11	17	12	10	17	10	9	16	9	7	13	8	6	12	7	5	10	6	5	9	5	6
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			Exposed	13	13	10	13	12	8	13	11	8	13	10	7	12	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	14	14	13	14	14	12	14	14	10	14	13	9	14	11	8	14	10	8	13	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	4	5	5	6	4
			Exposed	14	11	8	14	10	7	13	9	7	11	8	6	10	7	5	9	7	5	8	6	4	7	5	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3
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		27-45	Interior	20	20	19	20	20	17	20	19	15	19	17	14	18	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	7
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		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	14	12	14	14	10	14	10	9	14	10	8	12	9	7	13	8	6	10	6	5
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	D	0-7	Interior	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	12	9	13	11	8	13	10	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
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		27-45	Interior	18	18	18	18	18	17	18	18	15	17	17	14	17	16	12	16	14	11	15	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	7
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		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	10	8	11	9	7	10	8	6	10	7	5
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			Exposed	11	11	11	11	11	10	11	11	9	11	11	8	11	11	7	11	10	7	11	9	6	10	7	5	9	6	4	8	5	6	7	5	5	6	6	4	8	5	4
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	8	11	10	7	11	8	6	10	7	5	8	6	5
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		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	10	9	12	9	7	12	8	6	11	7	5	10	6	5	9	5	6
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		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	12	14	13	10	13	13	10	12	11	9	11	10	8	9	8	7	8	7	6	7	6	5
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	D	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	8	11	10	7	11	8	6	10	7	5	8	6	6	7	5	6	6	5	5
			Exposed	11	11	10	11	11	8	11	11	8	11	10	7	11	9	6	11	8	6	10	7	5	8	6	7	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	12	12	12	12	12	12	12	12	10	12	12	9	12	11	8	12	10	8	12	9	7	11	8	6	9	7	5	8	6	7	7	5	6	6	4	5	5	6	4
			Exposed	12	11	8	12	10	7	12	9	7	11	8	6	10	7	5	8	6	4	7	5	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3	4	3	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	12	7	6	11	6	5	10	5	4	8	5	6	7	7	5
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		27-45	Interior	16	16	16	16	16	16	16	16	15	15	15	14	15	15	12	14	14	11	14	13	10	12	11	9	10	9	7	9	8	6	8	7	5	7	6	5	6	5	7
			Exposed	16	16	12	16	14	11	14	12	10	13	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4

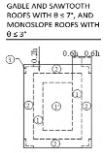
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

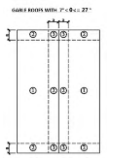
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

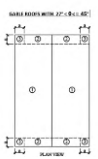
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

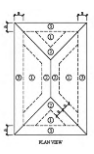












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

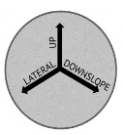
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

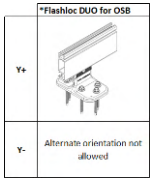
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	8	9	9	8	6
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	9	7	9	8	5
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		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	11	12	12	10	11	11	8	11	10	7
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	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	5	9	6	4	8	6	6
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		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5
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		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	9	8	6
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		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	5	8	6	4	8	7	5
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		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	9	7	9	8	6	9	7	5	8	6	5
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		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
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		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	9	9	8	9	9	7
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		7-20	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	4	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	5	8	6	5	8	5	6
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		27-45	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	10	10	10	10	10	10	10	10	10	8	7	8	8	7	8	8	6
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	D	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	6	6	7	5	6	6	5	5
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	5	7	6	4	7	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	7	5	7	6	4	7	5	4	5	5	4
			Exposed	8	8	8	8	8	8	7	8	8	6	8	7	5	8	8	6	8	8	5	8	8	5	8	6	4	7	5	6	4	5	5	6	4	5	5	4	6	4	3
		20-27	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	7	6	9	6	5	8	5	4	8	5	6	7	7	5	
			Exposed	9	9	9	9	9	9	8	9	9	7	9	8	6	8	8	7	9	7	5	9	6	4	8	5	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3
		27-45	Interior	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	10	10	10	9	9	9	7	9	8	6	8	7	5	7	6	5	6	5	4
			Exposed	12	12	12	12	12	11	12	12	10	11	11	9	11	10	8	10	9	7	9	8	7	8	7	5	7	6	5	6	5	6	5	4	5	4	6	5	6	5	4

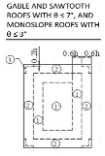
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

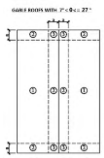
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

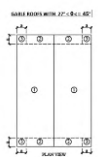
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

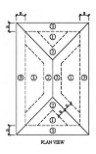












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

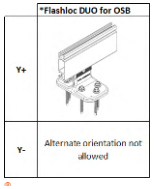
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	6
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	5	6	4	5	6	5
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	12	10
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	8	13	8	7	13	7	6
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	13	13	13	13	13	11
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	11	14	12	10	12	11	8	11	9	7
	C	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	4	6	6	6
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	5	6	6	4	6	5	3	6	5	4
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	4	6	5	5	6	5	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	4	6	5	6	4	5	5	6	4	3	5	4	3	5	4	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	10	8	12	9	7	12	8	6
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		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	13	13	13	13	13	12	12	12	10	12	11	9	11	10	8
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		20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	7	6	8	6	5	8	5	4	8	5	4	7	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	7	6	8	7	5	8	6	4	8	5	6	7	6	5	6	5	4	5	5	4	5	4	3
		27-45	Interior	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	17	17	17	16	16	16	15	15	13	14	14	11	14	12	10	12	11	8	11	9	7	9	8	7
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			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
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		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
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		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	11
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	C	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	6	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	4	5	5	4
		7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
			Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	6	5	4	5	5	6	4	5	5	4	6	5	3
		20-27	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	8	6	10	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	9	7	10	8	6	10	7	5	10	6	5	9	5	4
		27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	11	11	10	11	11	9	10	10	8	10	9	7
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	D	0-7	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	5	6	6	5
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	6	6	4	5	5	6	4	5	5	4	6	5	3
		7-20	Interior	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	7	6	5	4	5	5	4	5	5	4
			Exposed	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	4	5	5	6	4	4	5	4	6	4	3	5	4	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	10	8	12	8	7	12	7	6	11	7	5
			Exposed	13	13	13	13	13	13	13	13	12	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	7	6	11	6	5	9	5	4	8	5	4	7	4	3
		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	11	12	12	10	11	11	8	11	9	7	9	8	7
			Exposed	15	15	15	15	15	15	15	15	15	15	15	13	14	14	12	14	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	5	7	6	5	6	5	4

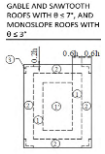
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

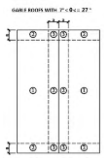
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

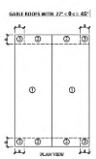
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

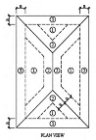












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

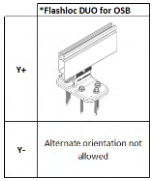
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	55	55	53	55	55	47	55	55	42	55	54	38	55	49	34	55	44	31	55	40	28	47	34	24	40	29	20	34	25	17	30	22	15	26	19	13	23	17	12
			Exposed	55	49	34	55	43	30	54	39	27	48	35	24	44	31	22	40	28	20	36	26	18	30	22	15	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	55	55	46	55	55	41	55	50	37	55	45	33	55	41	30	52	37	27	47	34	25	39	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	55	41	30	50	36	26	45	32	24	40	29	21	36	26	19	33	24	17	30	22	16	25	18	13	22	16	11	19	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	56	56	56	56	56	50	56	55	45	56	49	40	56	44	36	56	40	33	56	36	30	54	31	25	46	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	56	44	36	56	39	32	56	35	29	55	31	26	50	28	23	45	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	8
		27-45	Interior	57	57	57	57	57	57	57	57	53	57	57	48	57	55	43	56	50	39	51	46	36	43	38	30	37	33	26	32	28	22	28	25	19	24	22	17	21	19	15
			Exposed	57	55	43	55	49	38	49	44	34	44	39	31	40	36	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	55	52	36	55	46	32	55	41	28	51	37	26	46	33	23	42	30	21	38	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	46	33	23	41	29	20	36	26	18	33	24	17	30	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	8	9	10	11	8
		7-20	Interior	55	43	31	53	38	28	48	34	25	43	31	22	38	28	20	35	25	18	32	23	17	27	19	14	23	17	12	20	14	10	17	12	9	15	11	8	13	10	11
			Exposed	38	28	20	34	25	18	30	22	16	27	20	15	25	18	13	22	16	12	21	15	11	17	13	9	15	11	8	13	9	10	11	8	9	10	11	8	9	10	7
		20-27	Interior	56	47	38	56	41	34	56	37	30	56	33	27	53	30	25	48	27	22	43	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	52	30	25	46	27	22	41	24	20	37	21	18	34	19	16	31	18	15	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	57	57	46	57	52	41	52	46	36	47	42	33	42	38	30	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
			Exposed	42	37	29	37	33	26	33	30	24	30	27	21	27	24	19	25	22	17	23	20	16	19	17	13	16	15	12	14	13	10	12	11	9	11	10	12	10	9	10
	D	0-7	Interior	55	43	30	53	38	26	47	34	24	42	30	21	38	27	19	35	25	17	31	23	16	26	19	13	23	16	12	19	14	10	17	12	9	15	11	12	13	9	10
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		7-20	Interior	49	35	26	44	32	23	39	28	21	35	25	19	32	23	17	29	21	15	26	19	14	22	16	12	19	14	10	16	12	9	14	10	12	12	9	10	11	8	9
			Exposed	32	23	17	28	20	15	25	18	13	23	16	12	20	15	11	19	14	10	17	12	9	14	10	12	12	9	10	11	12	9	9	10	7	8	9	7	11	8	6
		20-27	Interior	56	38	31	56	34	28	54	31	25	48	27	23	43	25	20	39	23	19	36	21	17	30	17	14	26	15	12	22	13	11	19	11	9	17	10	8	15	9	11
			Exposed	43	25	20	38	22	18	34	20	16	31	18	15	28	16	13	25	15	12	23	13	11	19	11	9	17	10	8	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	54	48	38	48	43	34	43	38	30	39	34	27	35	31	25	30	28	22	29	26	20	24	22	17	21	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	35	31	24	31	28	22	28	25	20	25	22	18	23	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	8	10	9	11	9	8	10	8	11	9
10	B	0-7	Interior	45	45	45	45	45	45	45	45	42	45	45	38	45	45	34	45	44	31	45	40	28	45	34	24	40	29	20	34	25	17	30	22	15	26	19	13	23	17	12
			Exposed	45	45	45	45	45	30	45	39	27	45	45	24	44	31	22	40	28	20	36	26	18	30	22	15	26	19	13	22	16	11	19	14	10	17	12	9	15	11	12
		7-20	Interior	45	45	45	45	45	41	45	45	37	45	45	33	45	41	30	45	37	27	45	34	25	39	28	21	33	24	18	29	21	15	25	18	13	22	16	12	19	14	10
			Exposed	45	41	30	45	36	26	45	32	24	40	29	21	36	26	19	33	24	17	30	22	16	25	18	13	22	16	11	19	13	10	16	12	9	14	10	12	13	9	10
		20-27	Interior	51	51	51	51	51	50	51	51	45	51	49	40	51	44	36	51	40	33	51	36	30	51	31	25	46	26	21	39	22	18	34	20	16	30	17	14	26	15	13
			Exposed	51	44	36	51	39	32	51	35	29	51	31	26	50	28	23	45	26	21	41	23	19	34	20	16	29	17	14	25	15	12	22	13	10	19	11	9	17	10	8
		27-45	Interior	55	55	55	55	55	55	55	55	53	55	55	48	55	55	43	55	50	39	51	46	36	43	38	30	37	33	26	32	28	22	28	25	19	24	22	17	21	19	15
			Exposed	55	55	43	55	49	38	49	44	34	44	39	31	40	36	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	14	18	16	13	16	14	11	14	12	10
	C	0-7	Interior	45	45	36	45	45	32	45	41	28	45	37	26	45	33	23	42	30	21	38	27	19	32	23	16	27	20	14	23	17	12	20	15	10	18	13	9	16	11	12
			Exposed	45	33	23	41	29	20	36	26	18	33	24	17	30	21	15	27	19	14	24	18	12	21	15	10	18	13	9	15	11	12	13	10	10	12	8	9	10	11	8
		7-20	Interior	45	43	31	45	38	28	45	34	25	43	31	22	38	28	20	35	25	18	32	23	17	27	19	14	23	17	12	20	14	10	17	12	9	15	11	8	13	10	11
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		20-27	Interior	51	47	38	51	41	34	51	37	30	51	33	27	51	30	25	48	27	22	43	25	20	36	21	17	31	18	15	27	15	13	23	13	11	20	12	10	18	10	9
			Exposed	51	30	25	46	27	22	41	24	20	37	21	18	34	19	16	31	18	15	28	16	13	23	14	11	20	12	10	17	10	8	15	9	11	13	12	10	12	10	9
		27-45	Interior	55	55	46	55	52	41	52	46	36	47	42	33	42	38	30	38	34	27	35	31	25	29	26	21	25	22	18	22	19	15	19	17	13	17	15	12	15	13	10
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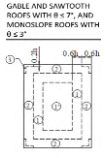
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

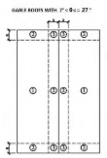
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

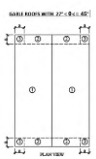
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

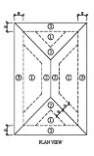












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

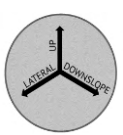
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

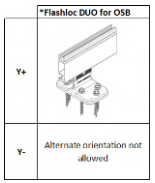
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		27-45	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	30	36	33	26	32	28	22	28	25	19	24	22	17	21	19	15
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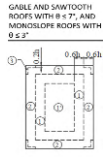
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

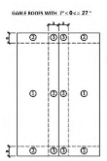
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

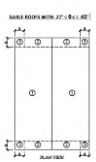
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

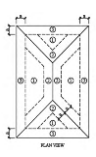












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

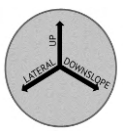
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

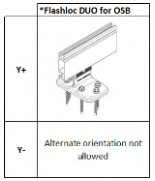
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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	C	0-7	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	10	13	13	9	13	11	12
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		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	14	17	15	13
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		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	19	19	19	19	19	17	18
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		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	14	10	15	12	9	14	10	12	12	9	10	11	8	9
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		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	14	18	15	12	18	13	11	17	11	9	16	10	8	15	9	11
			Exposed	19	19	19	19	19	18	19	19	16	19	18	15	19	16	13	19	15	12	19	13	11	19	11	9	17	10	8	14	8	10	12	11	9	11	10	8	10	9	7
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	22	22	22	21	21	21	21	21	20	20	20	20	17	19	19	15	18	16	13	16	14	11	14	12	10	12	11	9
			Exposed	23	23	23	23	23	22	23	23	20	23	22	18	22	20	16	21	18	15	19	17	13	16	14	11	14	12	10	12	10	8	10	9	11	9	8	10	8	11	9

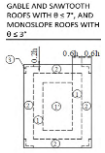
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

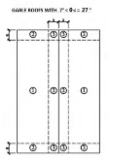
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

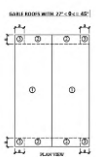
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

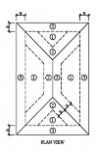












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

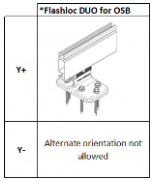
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
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			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	11	12	12	12	10
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	23	19	25	23	19
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		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	28	27	27	27	26	26	26	25	25	23
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		27-45	Interior	35	35	35	35	35	35	35	35	35	34	34	34	33	33	33	33	33	33	32	32	31	30	30	26	28	28	22	27	25	19	24	21	17	21	19	15	19	17	13
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	C	0-7	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	9	11	11	12
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		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
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		7-20	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	9	12	9	9
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			Exposed	29	29	29	29	29	29	29	29	29	29	29	27	28	28	24	28	28	22	27	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	10	12	11	9

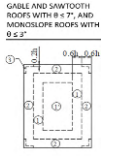
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

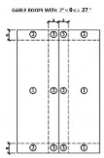
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

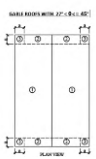
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

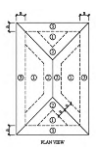












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

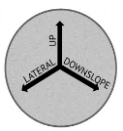
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

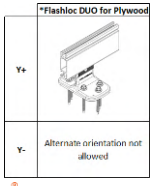
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	37	26	19	33	23	17	29	21	15	26	19	14	24	17	13	21	16	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	6	9	7	8	8	6	7
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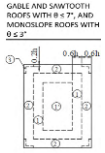
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

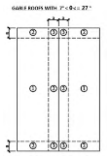
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

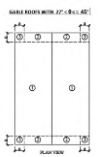
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

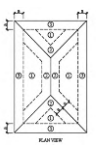












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

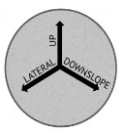
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

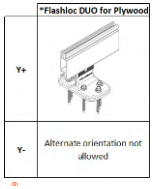
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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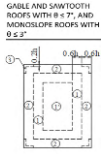
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

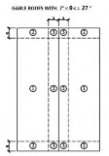
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

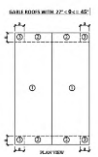
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

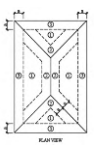












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

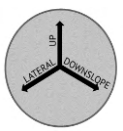
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

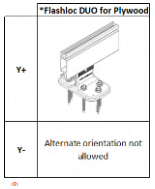
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	15	13	16	13	11	15	11	9	15	9	8	14	8	7	13	7	6	11	6	8			
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		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	18	18	18	18	18	17	18	18	15	17	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6		
			Exposed	19	19	18	19	19	16	19	18	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6		

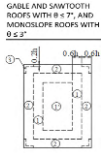
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

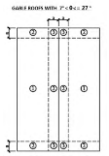
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

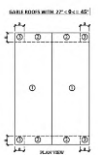
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

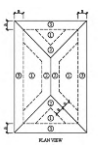












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

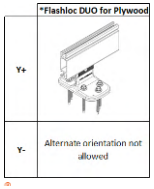
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
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		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	6	9	7	8
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	9
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		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	14	14	13	14	14	11	11
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	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	9	7	10	8	6	10	7	8	9	6	7
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	8
			Exposed	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	10	8	10	9	7	10	8	6	10	7	5	8	6	5
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	7	9	8	6	9	7	8
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		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	6	10	8	6	9	7	8	8	6	7
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		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	12	8	7	12	7	6	11	6	8
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		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
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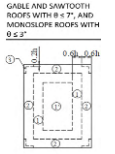
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

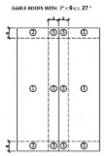
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

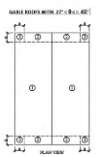
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

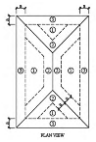












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

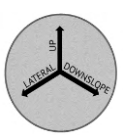
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

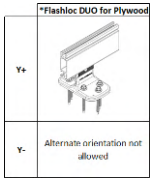
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	77	77	72	77	77	59	77	77	53	77	75	47	77	62	43	77	56	39	77	51	35	60	43	30	50	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	77	61	43	77	54	38	74	49	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	16	28	20	14	24	18	12	21	16	11	19	14	10
		7-20	Interior	77	77	58	77	77	52	77	63	46	77	57	41	77	51	37	65	47	34	59	42	31	49	36	26	42	30	22	36	26	19	32	23	17	28	20	15	24	18	13
			Exposed	77	51	37	63	45	33	56	41	30	51	37	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	10	16	12	13
		20-27	Interior	78	78	78	78	78	63	78	78	56	78	62	50	78	56	46	78	50	41	78	46	38	77	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	78	55	45	78	49	40	78	44	36	78	40	32	62	36	29	57	32	27	52	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	60	80	80	54	80	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
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	C	0-7	Interior	77	65	45	77	58	40	77	51	36	65	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	10
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		7-20	Interior	77	54	40	77	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
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		7-20	Interior	63	63	58	63	63	52	63	63	46	63	57	41	63	51	37	63	47	34	59	42	31	49	36	26	42	30	22	36	26	19	32	23	17	28	20	15			
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		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	60	77	77	54	77	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22			
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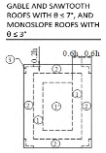
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

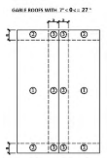
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

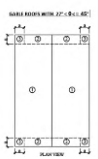
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

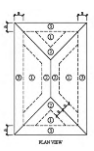












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

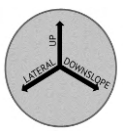
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

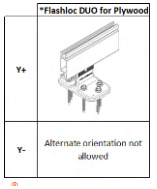
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	36	25	37	31	22	37	27	19	33	24	17	29	21	15
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		27-45	Interior	44	44	44	44	44	42	42	44	38	42	42	34	41	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
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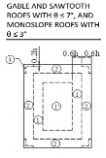
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

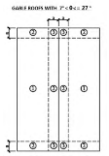
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

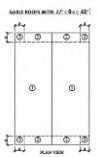
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

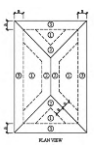












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

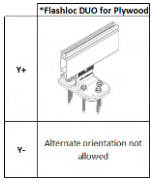
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	17	25	20	15	24	18	13			
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		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	28	23	31	25	20	30	22	18	29	19	16
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		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	33	34	34	28	32	31	25	31	27	22	27	24	19
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	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	17	25	21	15	25	19	13	23	16	12	20	15	10
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		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	18	25	21	15	25	18	13	22	16	12	19	14	10	17	12	14
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		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	26	19	15	25	16	13	24	14	12	21	12	10	19	11	14
			Exposed	26	26	26	26	26	23	26	25	21	26	22	19	26	20	17	26	19	15	26	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	30	30	28	30	30	26	28	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	32	32	31	32	32	28	32	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

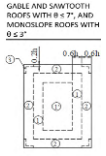
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

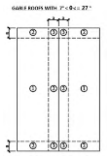
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

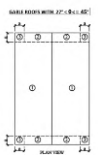
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

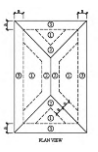












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

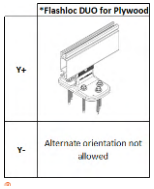
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	16	11	17	14	10
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	13	10	16	12	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	19	16
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	18	15	21	16	13	21	14	12	21	13	10
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	25	24	24	22	23	23	19
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	15	10
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	12	17	14	10	17	12	14
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	16	12	17	13	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	20	16	21	17	14	21	15	12	20	13	11	19	14	10
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		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	22	24	24	19	22	21	17	21	19	15	19	17	13	16	12	10
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	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	14	19	18	13	19	16	11	19	14	10	17	12	13	10
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		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	19	19	15	19	17	13	19	15	11	18	13	10	16	11	13	14	10	11	11
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		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	22	18	24	19	15	23	16	13	22	14	12	21	12	10	19	11	14
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		27-45	Interior	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	28	28	28	27	27	26	26	26	22	25	24	19	23	20	16	20	18	14	18	16	12	16	14	11
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			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	14	15	15	12	15	15	11	15	14	10
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	15	11
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40	39	39	37	37	37	33	36	36	29
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	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	12	15	15	10
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	13	15	11	11	13	14	10
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	14	10	16	12	14	10	12	14
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	14	16	16	12	16	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	14	19	15	12	19	13	11
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	17	19	17	14	19	15	12	19	13	10	19	11	14	17	10	12	15	13	11	17	12	9
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	39	39	38	38	34	36	36	30	34	33	26	32	29	23	28	25	20
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	34	41	39	31	37	33	26	31	28	22	27	24	19	24	21	17	21	19	15	19	17	13
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	17	11	17	14	10	17	12	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	13	17	16	11	17	13	14	16	12	12	14	10	11	12	14	10	11	12	8
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	17	11	17	17	10	16	11	13	17	12	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	17	12	17	13	10	16	11	13	13	10	11	12	13	10	10	11	8	14	10	7
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	19	15	21	16	13	21	14	12	20	12	10	19	11	14
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	20	17	21	19	15	21	17	14	21	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	18	16	12	16	14	11
			Exposed	27	27	27	27	27	27	27	27	25	27	27	22	27	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

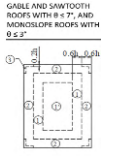
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

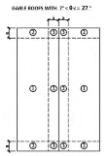
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

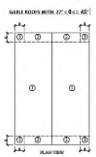
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

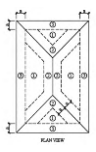












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

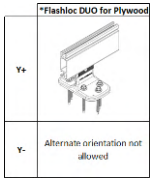
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	33	39	39	29	39	39	26	39	34	23	39	30	21	39	28	19	35	25	17	29	21	15	25	18	12	21	15	11	19	13	9	16	12	8	14	10	7
			Exposed	39	30	21	39	27	19	34	24	17	30	21	15	27	19	14	25	18	12	22	16	11	19	13	9	16	11	8	14	10	7	12	9	6	10	8	8	9	7	7
		7-20	Interior	39	39	29	39	35	25	39	31	23	39	28	20	35	25	18	32	23	17	29	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	40	40	35	40	40	31	40	34	28	40	30	25	40	27	22	40	25	20	40	23	19	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	40	27	22	40	24	20	40	22	18	34	19	16	31	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	11	6	6
		27-45	Interior	40	40	40	40	40	38	40	40	33	40	40	30	40	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	18	14	17	15	12	15	13	11	13	12	9
			Exposed	40	34	27	34	30	24	30	27	21	27	24	19	25	22	17	22	20	16	21	18	14	17	15	12	15	13	10	14	11	9	11	10	8	10	9	7	9	8	6
	C	0-7	Interior	39	32	22	39	28	20	36	25	18	32	23	16	29	21	14	26	19	13	24	17	12	20	14	10	17	12	8	15	10	7	13	9	6	11	8	6	10	7	8
			Exposed	29	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	39	27	19	33	24	17	30	21	15	26	19	14	24	17	13	22	16	11	20	14	10	17	12	9	14	10	7	12	9	6	11	8	6	9	7	8	8	6	7
			Exposed	24	17	13	21	15	11	19	14	10	17	12	9	15	11	8	14	10	7	13	9	7	11	8	6	9	7	6	8	6	6	7	6	6	7	8	5	6	7	4
		20-27	Interior	40	29	24	40	26	21	40	23	19	37	21	17	33	19	15	30	17	14	27	15	13	23	13	11	19	11	9	17	10	8	14	8	7	13	7	6	11	6	8
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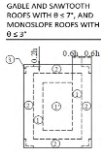
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

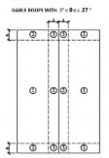
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

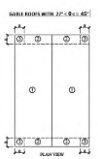
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

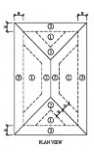












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Orientation	Rail Direction	Clamp	Attachment

SPAN TABLES

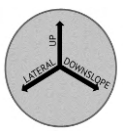
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

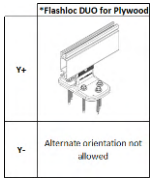
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	24	24	22	24	24	20	24	22	18	24	19	16	24	18	14	24	16	13	24	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	11	6	6
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		7-20	Interior	19	19	19	19	19	17	19	19	15	19	19	14	19	17	13	19	16	11	19	14	10	17	12	9	14	10	7	12	9	6	11	8	6	9	7	8	8	6	7
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		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	15	12	17	12	10	17	10	9	16	9	7	14	8	6	12	7	6	11	6	8
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		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	19	18	14	17	15	12	15	13	11	13	12	9
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	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	14	10	15	12	8	15	10	7	13	9	6	11	8	6	10	7	8
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		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	15	12	15	15	11	15	13	9	12	9	6	11	8	6	9	7	8	8	6	7	8	6	7
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		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	17	10	17	15	12	17	13	11	17	11	9	16	10	8	14	8	7	13	7	6	11	6	8
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		27-45	Interior	20	20	18	20	20	16	20	19	15	19	17	13	17	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	8	6	6	7	6	6
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	D	0-7	Interior	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	15	11	16	14	10	16	12	8	14	10	7	12	9	6	10	8	8	9	7	7	8	6	6
			Exposed	16	16	12	16	15	10	16	13	9	16	12	8	15	11	8	14	10	7	13	9	6	11	8	8	9	6	7	8	6	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	16	16	16	16	16	14	16	16	13	16	16	12	16	14	10	16	13	9	16	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	5	6	7	8	5
			Exposed	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	12	8	6	11	8	6	9	6	7	8	5	6	6	7	5	6	6	5	8	5	4	7	5	3
		20-27	Interior	19	19	19	19	19	17	19	19	16	19	17	14	19	15	13	19	14	11	19	13	10	18	11	9	16	9	7	14	8	6	12	7	6	10	6	8	9	8	7
			Exposed	19	15	13	19	14	11	19	12	10	19	11	9	17	10	8	16	9	7	14	8	7	12	7	6	10	6	7	9	8	6	8	7	6	7	6	5	6	5	4
		27-45	Interior	22	22	22	22	22	21	22	22	19	21	21	17	20	19	15	20	18	14	18	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	8
			Exposed	22	19	15	19	17	14	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	6	7	5	8	6	7	7	5

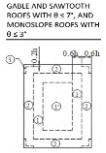
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

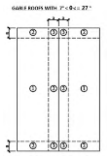
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

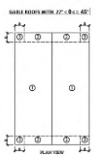
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

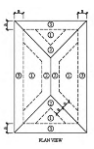












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

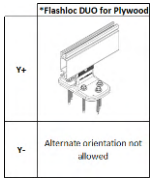
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	12	8	12	10	7	12	9	6	10	8	8	9	7	7
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9	12	11	8	12	10	7	12	9	6	10	8	8	9	7	7	7	6	5
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	9	13	11	8	13	10	7	12	9	6	11	8	6	9	7	8	7	6	5
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		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	11	15	12	10	15	11	9	15	9	8	12	9	7	8	6	6	8	6	5
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		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	17	17	14	16	15	12	15	13	11	13	12	9	11	9	9	10	8	7
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	17	15	12	15	13	10	13	11	9	11	10	8	10	9	7	9	8	6	8	6	5	6	5	4
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			Exposed	12	12	12	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	11	8	12	9	6	11	8	5	9	7	7	8	6	6	8	5	6	7	5	5	6	5	4	5	4	3
		7-20	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	12	9	13	10	7	12	9	6	11	8	6	9	7	8	8	6	6	7	5	4	6	5	4
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		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13	15	13	11	15	11	9	15	10	8	14	8	7	13	7	6	11	6	5	7	5	4	5	4	3
			Exposed	15	15	15	15	15	14	15	15	12	15	13	11	15	12	10	15	11	9	15	10	8	15	8	7	12	7	6	11	6	5	8	7	6	7	6	5	6	5	4	6	4	4	5	4	3
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	15	16	16	13	16	14	11	13	12	9	12	10	8	10	9	7	9	8	6	8	6	5	6	5	4
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		7-20	Interior	14	14	14	14	14	14	14	14	13	14	14	12	14	14	10	14	13	9	14	12	9	14	10	7	12	8	6	10	7	8	9	6	7	8	5	6	7	5	5	6	5	4	5	4	3
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		20-27	Interior	17	17	17	17	17	17	17	17	16	17	17	14	17	15	13	17	14	11	17	13	10	16	11	9	15	9	7	14	8	6	12	7	6	10	6	6	8	6	4	6	4	3	4	3	2
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		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	17	18	18	15	18	18	14	17	16	13	15	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5	7	5	4	5	4	3
			Exposed	19	19	15	19	17	14	17	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	6	7	6	5	6	5	4	5	4	3	4	3	3	3	3	2
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			Exposed	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	10	7	11	9	6	10	8	8	9	7	6
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		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	12	10	13	11	9	13	9	7	10	8	8	9	7	6
			Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	12	10	13	10	9	12	10	7	9	8	6	8	7	6	7	6	5	6	5	4	5	4	3
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	14	15	15	12	14	13	11	13	12	9	12	9	9	10	8	7
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		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	9	11	10	7	11	9	6	11	8	6	9	7	8	8	6	6	7	5	4	6	5	4
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		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	13	10	13	11	9	13	10	8	13	8	7	12	7	6	11	6	5	7	5	4	5	4	3
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		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	12	13	13	11	12	12	9	12	9	8
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	7
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		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	12	10	9
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		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	13	13	11	13	13	11	12	12	9	12	9	8
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		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	7	10	8	6	10	7	8	9	6	7	8	5	6	7	5	5	6	5	4	5	4	3
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	6	10	8	6	9	6	7	8	5	6	6	5	4	7	5	3	6	4	3	5	3	3	4	3	2	3	2	2
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	9	13	9	7	12	8	6	12	7	6	10	6	8	9	8	7	8	6	5	6	5	4
			Exposed	13	13	13	13	13	11	13	12	10	13	11	9	13	10	8	13	9	7	13	8	7	12	7	6	11	6	8	9	8	7	8	7	6	7	6	5	6	5	4	5	4	3	4	3	2
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	15	15	13	14	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	5	7	5	4	5	4	3
			Exposed	16	16	15	16	16	14	16	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	6	7	6	5	6	5	4	5	4	3	4	3	3	3	3	2

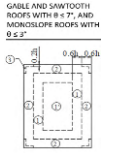
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

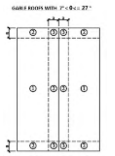
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

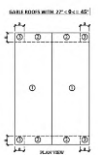
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

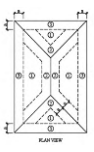












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

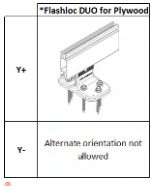
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	8	6
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	16	13	18	14	12	16	13	11
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	18	14	11	18	12	10	18	11	9	16	12	9
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	14	17	15	12
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	14	17	15	12	15	13	10	13	12	9
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	7	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	7	8	5	8	6	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	7	8	8	6	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	6	8	8	6	8	7	6	8	8	6	7	8	5	8	6	4
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	17	14	18	15	12	18	13	10	17	11	9	16	10	8
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	8	9	6	7	8	5	6	7	8	5
			Exposed	9	9	9	9	9	9	9	9	8	9	9	7	9	9	7	9	8	6	9	8	6	9	6	7	8	5	6	6	7	5	6	6	5	8	5	4	7	5	3
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	10	12	11	9	12	9	7	11	8	6	11	7	6	10	6	8	9	8	7	
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		27-45	Interior	25	25	25	25	25	25	25	25	24	24	24	24	24	24	23	23	23	21	22	22	19	21	21	16	20	18	14	17	15	12	15	13	10	13	12	9	12	10	8
			Exposed	25	25	23	25	25	21	25	24	19	24	21	17	21	19	15	20	17	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
100	B	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	7	6
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	9	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16	14
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	C	0-7	Interior	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	7	7	8
			Exposed	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	5	7	7	7	7	6	6	7	8	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	7	7	8	6	6	7	8	6	7	8	5	7	8	4
		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	14	12	14	13	10	14	11	9	14	10	8
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	12	14	13	11	14	11	9	14	9	8	14	8	7	12	7	6	11	6	5
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	16	16	16	14	16	16	13	15	14	11	14	12	10
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	16	13	15	14	11	13	12	9	12	10	8	10	9	7	9	8	6
	D	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	6	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	6	7	8	6	6	7	7	5	6	7	5	8	6	4
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	8	6	7	8	5	6	7	5
			Exposed	8	8	8	8	8	8	8	8	8	8	8	7	8	8	7	8	8	6	8	8	6	8	6	7	8	5	6	6	7	5	6	6	5	8	5	4	7	5	3
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	16	13	18	14	12	17	12	10	17	11	9	16	9	8	14	8	7			
			Exposed	18	18	18	18	18	17	18	18	15	18	17	14	18	15	12	18	14	11	18	13	10	18	11	9	16	9	7	13	8	6	12	7	6	10	6	5	9	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	16	17	17	14	17	15	12	15	13	10	13	12	9	12	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	17	20	19	15	19	17	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5

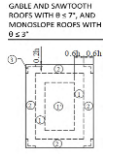
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

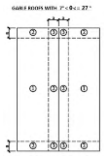
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

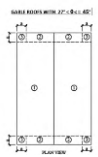
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

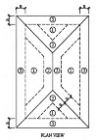












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

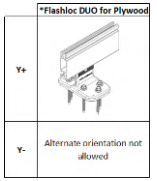
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	75	75	66	75	75	58	75	75	52	75	70	46	75	60	42	75	55	38	75	50	35	58	42	29	49	35	25	42	31	21	37	27	19	32	23	16	29	21	15
			Exposed	75	60	42	75	53	37	69	47	33	60	43	30	54	39	27	49	35	25	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	19	13	14
		7-20	Interior	76	76	57	76	76	51	76	62	45	76	56	41	76	50	37	64	46	33	58	41	30	48	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	76	50	37	62	44	32	55	40	29	50	36	26	45	32	24	41	29	22	37	27	20	31	23	17	27	19	14	23	17	12	20	15	11	18	13	14	16	11	13
		20-27	Interior	77	77	77	77	77	61	77	77	55	77	60	49	77	54	45	77	49	40	77	45	37	69	38	31	56	32	26	48	28	23	42	24	20	37	21	18	32	19	16
			Exposed	77	54	44	77	48	39	77	43	35	77	39	32	61	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	10
		27-45	Interior	78	78	78	78	78	78	78	78	68	78	78	59	78	78	53	78	62	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	78	78	53	78	60	47	60	54	42	54	48	38	49	44	35	45	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	75	64	44	75	56	39	75	50	35	63	45	32	57	41	29	52	37	26	47	34	24	39	28	20	34	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	57	41	28	50	36	25	45	32	23	40	29	20	36	26	19	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10
		7-20	Interior	76	53	39	71	47	34	59	42	31	53	38	28	47	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	14	10	16	12	13
			Exposed	47	34	25	42	30	22	37	27	20	34	24	18	31	22	16	28	20	15	25	18	14	21	16	11	18	13	10	16	11	13	14	10	11	12	13	9	11	12	9
		20-27	Interior	77	57	47	77	51	42	77	46	37	77	41	34	65	37	30	59	34	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	65	37	30	57	33	27	51	29	24	46	26	22	41	24	20	38	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	9	17	10	8	14	9	7
		27-45	Interior	78	78	56	78	64	50	64	57	45	57	51	40	52	46	37	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	52	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	75	52	36	65	47	32	58	42	29	52	37	26	47	34	24	43	31	22	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	47	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	11	12	8
		7-20	Interior	61	44	32	54	39	29	48	35	26	43	31	23	39	28	21	36	26	19	32	24	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	23	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	10	11	8	14	10	10	7
		20-27	Interior	77	47	39	77	42	35	68	48	31	59	42	30	53	37	25	48	28	23	44	25	21	37	26	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	9
			Exposed	53	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	12	21	12	10	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	78	59	47	59	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	10	12	10	13	11
10	B	0-7	Interior	61	61	61	61	61	58	61	61	52	61	61	46	61	60	42	61	55	38	61	50	35	58	42	29	49	35	25	42	31	21	37	27	19	32	23	16	29	21	15
			Exposed	61	60	60	61	61	53	37	61	47	60	43	30	54	39	27	49	35	25	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	19	13	14
		7-20	Interior	62	62	57	62	62	51	62	62	45	62	56	41	62	50	37	62	46	33	58	41	30	48	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	62	50	37	62	44	32	55	40	29	50	36	26	45	32	24	41	29	22	37	27	20	31	23	17	27	19	14	23	17	12	20	15	11	18	13	14	16	12	13
		20-27	Interior	70	70	70	70	70	61	70	70	55	70	60	49	70	54	45	70	49	40	70	45	37	69	38	31	56	32	26	48	28	23	42	24	20	37	21	18	32	19	16
			Exposed	70	54	44	70	48	39	70	43	35	70	39	32	61	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	10
		27-45	Interior	76	76	76	76	76	76	76	76	68	76	76	59	76	76	53	76	62	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	76	76	53	76	60	47	60	54	42	54	48	38	49	44	35	45	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	61	61	44	61	56	39	61	50	35	61	45	32	57	41	29	52	37	26	47	34	24	39	28	20	34	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	57	41	28	50	36	25	45	32	23	40	29	20	36	26	19	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10
		7-20	Interior	62	53	39	62	47	34	59	42	31	53	38	28	47	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	14	10	16	12	13
			Exposed	47	34	25	42	30	22	37	27	20	34	24	18	31	22	16	28	20	15	25	18	14	21	16	11	18	13	10	16	11	13	14	10	11	12	13	10	11	12	9
		20-27	Interior	70	57	47	70	51	42	70	46	37	70	41	34	65	37	30	59	34	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	65	37	30	57	33	27	51	29	24	46	26	22	41	24	20	38	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	15	12	14	13	11
		27-45	Interior	76	76	56	76	64	50	64	57	45	57	51	40	52	46	37	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	52	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	61	52	36	61	47	32	58	42	29	52	37	26	47	34	24	43	31	22	39	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	47	34	24	42	30	21	37	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	11	12	8
		7-20	Interior	61	44	32	54	39	29	48	35	26	43	31	23	39	28	21	36	26	19	32	24	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	10	11
			Exposed	39	28	21	35	25	18	31	23	17	28	20	15	25	18	14	23	17	12	21	15	11	18	13	14	15	11	12	13	14	11	11	13	10	11	8	14	10	10	7
		20-27	Interior	72	47	39	72	42	35	68	38	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	14
			Exposed	53	31	25	47	27	22	42	24	20	38	22	18	34	20	16	31	18	15	28	17	14	24	14	12	21	12	10	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	77	59	47	59	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	10	12	10	13	11
20	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	38	46	46	35	46	42	29	46	35	25	42	31	21	37	27	19	32	23	16	29	21	15
			Exposed	46	46	42	46	46	37	46	46	33	46	43	30	46	39	27	46	35	25	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	19	13	14
		7-20	Interior	46	46	46	46	46	46	46	46	45	46	46	41	46	46	37	46	46	33	46	41	30	46	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	46	46	37	46	44	32	46	46	29	46	46	26	45	32	24	41	29	22	37	27	20	31	23	17	27	19	14	23	17	12	20	15	11	18	13	14	16	11	13
		20-27	Interior	56	56	56	56	56	56	56	56	55	56	56	49	56	54	45	56	49	40	56	45	37	56	38	31	56	32	26	48	28	23	42	24	20	37	21	18	32	19	16
			Exposed	56	54	44	56	48	39	56	43	35	56	39	32	56	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	10
		27-45	Interior	62	62	62	62	62	62	62	62	62	62	62	59	62	62	53	62	62	48	62	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	62	62	53	62	60	47	60	54	42	54	48	38	49	44	35	45	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	46	46	44	46	46	39	46	46	35	46	45	32	46	41	29	46	37	26	46	34	24	39	28	20	34	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	46	41	28	46	36	25	45	32	23	40	29	20	36	26	19	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10
		7-20	Interior	46	46	39	46	46	34	46	42	31	46	38	28	46	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	14	10	16	12	13
			Exposed	46	34	25	42	30	22	37	27	20	34	24	18	31	22	16	28	20	15	25	18	14	21	16	11	18	13	10	16	11	13	14	10	11	12	13	10	11	12	9
		20-27	Interior	56	56	47	56	51	42	56	46	37	56	41	34	56	37	30	56	34	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	56	37	30	56	33	27	51	29	24	46	26	22	41	24	20	38	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	15	12	14	13	11
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			Exposed	52	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
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		7-20	Interior	46	44	32	46	39	29	46	35	26	43	31	23	39	28	21	36	26	19	32	24	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	10	11
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		20-27	Interior	58	47	39	58	42	35	58	38	31	58	34	28	53	31	25	48	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	14
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		27-45	Interior	64	59	47	59	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
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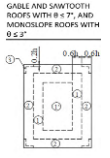
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

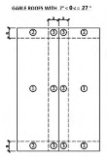
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

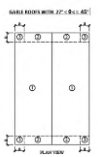
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

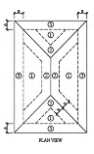












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

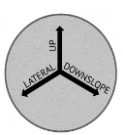
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

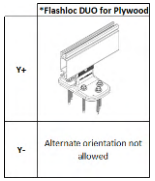
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	37	30	37	35	26	37	30	22	35	26	19	31	22	16	27	20	14	24	17	13
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		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	40	46	45	37	46	38	31	46	32	26	46	28	23	42	24	20	37	21	18	32	19	16
			Exposed	46	46	44	46	46	39	46	43	35	46	39	32	46	35	29	46	32	26	46	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	10
		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	44	52	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
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		27-45	Interior	43	43	43	43	43	41	43	43	37	41	41	33	40	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
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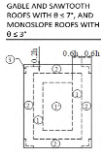
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

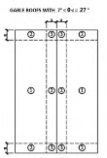
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

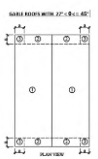
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

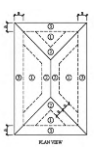












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

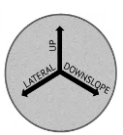
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

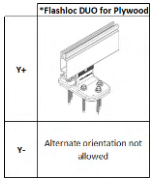
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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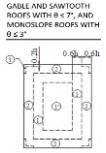
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

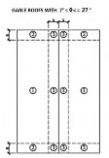
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

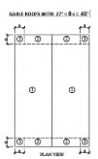
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

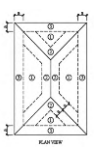












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

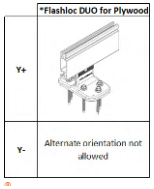
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	11	17	13	14
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	17	14	17	17	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	15	11	17	13	14	16	11	13
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	32	27	35	29	24		
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	32	26	35	27	23	35	24	20	35	21	17	32	19	15
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	38	38	37	37	36	36	36	32	34	34	28
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	31	38	34	27	33	30	24	29	26	21	26	23	19
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	11	17	14	15
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	13	17	16	11	17	14	15	16	12	13	14	10	11
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	14	10	16	12	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	11	17	13	10	16	11	13	14	10	11	12	9		
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	33	28	35	29	24	34	25	21	33	22	18	32	20	16
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		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	38	38	38	36	36	33	35	35	29	33	32	25	31	28	22	28	25	20	
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	33	39	38	30	36	32	25	31	27	22	26	24	19	23	21	16	20	18	14	18	16	13
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	14	18	17	12	18	15	11	18	13	14	16	12	13	
			Exposed	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	18	14	18	18	13	18	15	11	18	13	14	16	11	12	14	15	11	12	13	9	11	12	8	
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	17	12	19	15	11	18	13	14	15	11	13	14	10	11	
			Exposed	19	19	19	19	19	18	19	19	17	19	19	15	19	18	14	19	17	12	19	15	11	18	13	14	15	11	12	13	14	11	11	13	9	10	11	8	14	10	7
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	21	18	23	18	15	22	16	13	22	14	11	21	12	10	19	11	14	
			Exposed	23	23	23	23	23	22	23	23	20	23	22	18	23	20	16	23	18	15	23	17	14	23	14	12	21	12	10	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	48	48	48	48	48	48	48	48	48	47	47	47	46	46	46	45	45	42	44	44	38	41	41	32	39	35	28	34	30	24	30	26	21	26	23	18	23	21	16
			Exposed	48	48	46	48	48	41	48	47	37	47	42	33	43	38	30	39	35	27	35	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11
100	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	12	15	15	11	15	13	14	15	11	13			
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	27	23	28	24	20	28	21	17	28	19	15
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	34	34	33	33	32	32	32	28
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	31	36	36	27	36	34	27	33	30	24	29	26	21	26	23	19
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	13	14	10	11	13	14	10
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	11	15	14	10	15	12	13
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	11	15	13	10	15	11	13	14	10	11	12	13	10	11	12	9
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	25	21	28	22	18	28	20	16
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	28	26	21	28	22	18	28	19	16	28	16	14	25	15	12	22	13	11
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	34	34	33	32	32	29	31	31	25	30	28	22	28	25	20
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	35	32	25	31	27	22	26	24	19	23	21	16	20	18	14	18	16	13
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	12	17	17	12	17	15	11	17	13	14	16	12	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	14	17	17	13	17	15	11	17	13	14	16	11	12	14	15	11	12	13	9	11	12	8	
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	11	17	13	14	17	15	11	17	13	14	15	11	13	14	10	11
			Exposed	17	17	17	17	17	17	17	17	17	17	17	15	17	14	17	17	12	17	17	11	17	13	14	15	11	12	13	9	11	12	8								
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	33	27	35	28	23	34	24	20	33	21	17	32	19	15	28	16	14	
			Exposed	35	35	35	35	35	34	35	35	30	35	33	27	35	30	25	35	27	23	35	25	21	35	21	18	31	18	15	27	16	13	23	14	11	21	12	10	18	11	9
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	38	38	38	38	38	38	36	36	32	34	34	28	33	30	24	29	26	21	26	23	18	23	21	16
			Exposed	40	40	40	40	40	40	40	40	37	40	40	33	39	38	30	38	34	27	35	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11

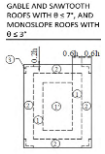
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

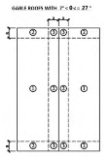
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

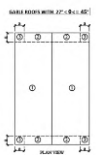
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

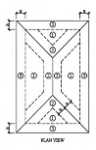












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

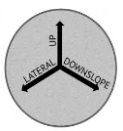
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

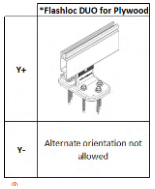
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																		
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	47	47	40	47	47	35	47	47	31	47	41	28	47	36	25	47	33	23	42	30	21	35	25	18	30	21	15	26	18	13	22	16	11	19	14	10	17	12	9
			Exposed	47	36	25	47	32	22	40	29	20	36	26	18	32	23	16	29	21	15	27	19	13	22	16	11	19	14	10	16	12	8	14	10	7	13	9	6	11	8	6
		7-20	Interior	47	47	34	47	42	31	47	38	27	47	34	25	42	30	22	38	28	20	35	25	18	29	21	15	25	18	13	21	15	11	19	13	10	16	12	9	14	10	8
			Exposed	42	30	22	37	27	20	33	24	18	30	22	16	27	19	14	25	18	13	22	16	12	19	14	10	16	12	8	14	10	7	12	9	6	11	8	6	9	7	8
		20-27	Interior	47	47	42	47	47	37	47	41	33	47	36	30	47	33	27	47	30	24	47	27	22	40	23	19	34	19	16	29	17	14	25	15	12	22	13	11	20	11	9
			Exposed	47	33	27	47	29	24	47	26	21	41	23	19	37	21	17	33	19	16	30	17	14	26	15	12	22	13	10	19	11	9	16	9	8	14	8	7	13	7	6
		27-45	Interior	48	48	48	48	48	46	48	48	40	48	48	36	48	41	32	42	37	29	38	34	27	32	29	23	27	24	19	24	21	17	21	18	14	18	16	13	16	14	11
			Exposed	48	41	32	41	36	29	37	33	26	33	29	23	30	26	21	27	24	19	25	22	17	21	19	15	18	16	12	15	14	11	13	12	9	12	10	8	10	9	7
	C	0-7	Interior	47	39	27	47	34	24	43	30	21	38	27	19	34	25	17	31	22	16	28	20	14	24	17	12	20	15	10	17	13	9	15	11	8	13	10	7	12	8	6
			Exposed	34	25	17	30	22	15	27	20	14	24	18	12	22	16	11	20	14	10	18	13	9	15	11	8	13	9	6	11	8	6	10	7	8	9	6	7	8	8	6
		7-20	Interior	47	32	23	40	28	21	35	25	19	32	23	17	29	21	15	26	19	14	24	17	13	20	14	11	17	12	9	15	11	8	13	9	7	11	8	6	10	7	8
			Exposed	29	21	15	25	18	13	23	16	12	20	15	11	18	13	10	17	12	9	15	11	8	13	9	7	11	8	6	9	7	8	8	6	7	7	8	6	6	7	5
		20-27	Interior	47	35	28	47	31	25	47	28	23	44	25	20	39	22	18	36	20	17	32	19	15	27	16	13	23	13	11	20	11	9	17	10	8	15	9	7	13	8	6
			Exposed	39	22	18	35	20	16	31	18	15	28	16	13	25	14	12	23	13	11	21	12	10	17	10	8	15	9	7	13	7	6	11	6	8	10	6	7	9	8	6
		27-45	Interior	48	44	34	44	39	30	39	34	27	35	31	24	31	28	22	29	25	20	26	23	18	22	20	15	19	17	13	16	14	11	14	13	10	12	11	9	11	10	8
			Exposed	31	28	22	28	25	20	25	22	18	22	20	16	20	18	14	18	17	13	17	15	12	14	13	10	12	11	9	10	9	7	9	8	6	8	7	6	7	6	8
	D	0-7	Interior	46	32	22	39	28	20	35	25	18	31	23	16	28	20	14	26	19	13	23	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	9	10	7	8
			Exposed	28	20	14	25	18	13	22	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	8	9	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	37	26	19	33	23	17	29	21	15	26	19	14	24	17	13	21	16	11	20	14	10	16	12	9	14	10	7	12	9	6	11	8	6	9	7	8	8	6	7
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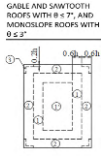
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

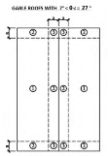
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

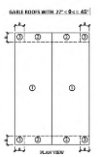
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

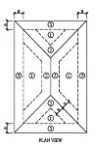












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

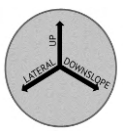
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

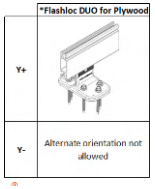
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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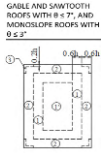
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

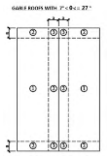
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

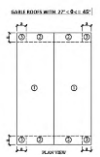
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

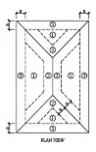












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

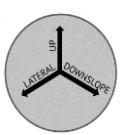
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

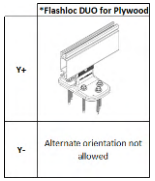
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	9	11	11	8	11	9	7	11	8	6
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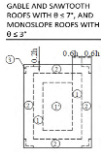
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

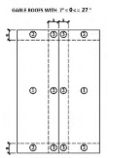
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

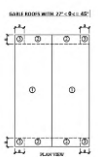
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

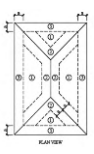












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

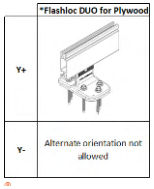
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9
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		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	11	13	11	9	13	10	9
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		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	14	14	13	14	14	11
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		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	10	7	8
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		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	7	10	9	6	10	8	6	10	8	7	9	6	7
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		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	11	9	13	9	8	12	8	7	12	7	6	11	6	8
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		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	14	14	11	13	12	9	12	10	8	10	9	7	9	8	6
			Exposed	16	16	16	16	16	16	16	16	15	16	16	13	16	15	12	15	14	11	14	13	10	12	11	8	10	9	7	9	8	6	8	7	8	7	6	7	6	8	6

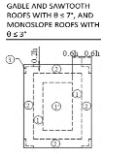
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

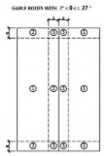
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

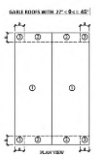
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

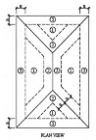












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

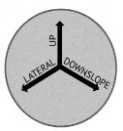
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

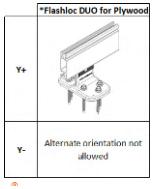
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	77	77	72	77	77	59	77	77	53	77	75	47	77	62	43	77	56	39	77	51	35	60	43	30	50	36	25	43	31	22	38	27	19	33	24	17	29	21	15
			Exposed	77	61	43	77	54	38	74	49	34	61	44	30	55	39	28	50	36	25	45	33	23	38	27	19	32	23	16	28	20	14	24	18	12	21	16	11	19	14	10
		7-20	Interior	77	77	58	77	77	52	77	63	46	77	57	41	77	51	37	65	47	34	59	42	31	49	36	26	42	30	22	36	26	19	32	23	17	28	20	15	24	18	13
			Exposed	77	51	37	63	45	33	56	41	30	51	37	27	46	33	24	41	30	22	38	27	20	32	23	17	27	20	15	23	17	13	20	15	11	18	13	10	16	12	13
		20-27	Interior	78	78	78	78	78	63	78	78	56	78	62	50	78	56	46	78	50	41	78	46	38	77	39	32	57	33	27	49	28	23	43	25	20	38	22	18	33	19	16
			Exposed	78	55	45	78	49	40	78	44	36	78	40	32	62	36	29	57	32	27	52	30	24	43	25	21	37	21	18	32	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	60	80	80	54	80	63	49	64	57	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
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	C	0-7	Interior	77	65	45	77	58	40	77	51	36	65	46	32	58	42	29	53	38	27	48	35	24	40	29	20	34	25	17	30	21	15	26	19	13	23	16	12	20	15	10
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		7-20	Interior	77	54	40	77	48	35	60	43	31	54	39	28	48	35	26	44	32	23	40	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
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		20-27	Interior	78	59	48	78	52	43	78	47	38	78	42	34	70	38	31	60	34	28	55	31	26	46	26	22	39	23	19	34	20	16	29	17	14	26	15	12	23	13	11
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		20-27	Interior	59	48	40	59	43	35	59	38	32	59	35	29	55	31	26	49	29	23	45	26	21	38	22	18	32	19	15	28	16	13	24	14	12	21	12	10	19	11	14
			Exposed	54	31	26	48	28	23	43	25	21	39	22	19	35	20	17	32	19	15	29	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	66	61	48	60	54	42	54	48	38	49	43	34	44	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	44	39	31	39	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

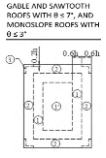
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

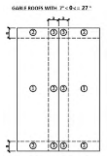
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

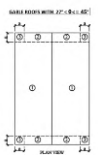
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

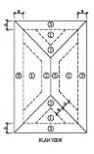












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

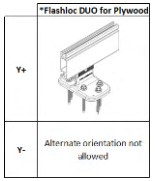
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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			Exposed	37	37	37	37	37	37	37	37	34	37	37	30	37	37	28	37	36	25	37	33	23	37	27	19	32	23	16	28	20	14	24	18	12	21	16	11	19	14	10
		7-20	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	34	38	38	31	38	36	26	38	30	22	36	26	19	32	23	17	28	20	15	24	18	13			
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		20-27	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	41	47	46	38	47	39	32	47	33	27	47	28	23	43	25	20	38	22	18	33	19	16
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		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	45	54	48	38	46	41	33	40	36	28	35	31	25	31	27	22	27	24	19
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		7-20	Interior	38	38	38	38	38	35	38	38	31	38	38	28	38	35	26	38	32	23	38	29	21	34	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12	14
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		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	19	30	23	17	28	20	15	24	18	13
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		7-20	Interior	30	30	30	30	30	30	30	30	30	30	30	28	30	30	26	30	30	23	30	30	29	21	30	24	18	29	21	15	25	18	13	22	16	12	19	14	10	17	12
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		27-45	Interior	44	44	44	44	44	42	44	44	38	42	42	34	41	39	31	40	36	28	37	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
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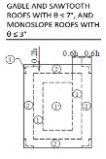
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

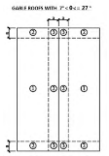
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

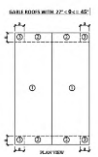
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

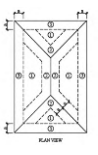












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

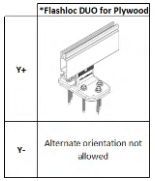
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19	25	24	17	25	21	15
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	16	25	20	14	24	18	12	21	16	11	19	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	23	17	25	20	15	24	18	13
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	23	17	25	20	15	23	17	13	20	15	11	18	13	10	16	12	13
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	28	23	31	25	20	30	22	18	29	19	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	30	24	31	25	21	31	21	18	31	18	15	28	16	13	24	14	12	22	13	10
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	34	28	32	31	25	31	27	22	27	24	19			
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	29	35	31	25	30	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	17	25	21	15	25	19	13	23	16	12	20	15	10
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	24	17	25	22	16	25	19	13	22	16	11	19	14	10	17	12	13	15	11	11	13	14	10
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	24	18	25	21	15	25	18	13	22	16	12	19	14	10	17	12	14
			Exposed	25	25	25	25	25	23	25	25	20	25	25	18	25	23	17	25	21	15	25	19	14	22	16	12	19	14	10	16	12	13	14	10	11	12	14	10	11	12	9
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	26	31	26	22	30	23	19	29	20	16	28	17	14	26	15	12	23	13	11
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		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	34	35	35	31	33	33	26	31	28	22	27	25	19	24	21	17	21	19	15	19	17	13
			Exposed	37	37	37	37	37	33	37	37	30	37	34	27	34	31	24	31	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	10	12	11	13
	D	0-7	Interior	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	28	28	20	28	24	17	28	21	14	25	18	13	21	16	11	19	14	10	17	12	13	
			Exposed	28	28	24	28	28	21	28	27	19	28	25	17	28	22	16	28	20	14	26	19	13	22	16	11	18	13	14	16	12	12	14	10	11	12	14	10	11	12	8
		7-20	Interior	28	28	28	28	28	28	28	28	26	28	28	24	28	28	21	28	26	19	28	24	18	28	20	15	24	17	13	21	15	11	18	13	10	16	11	13	14	10	11
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		20-27	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	31	26	33	29	23	33	26	21	32	22	18	31	19	15	28	16	13	24	14	12	21	12	10	19	11	14
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		27-45	Interior	39	39	39	39	39	39	38	38	38	34	37	37	31	36	36	28	35	33	26	31	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11		
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			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	22	16	22	19	13	22	16	11	19	14	10	17	12	13	15	11	11	13	14	10
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	21	15	22	18	13	22	16	12	19	14	10	16	12	14
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		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	25	20	27	22	18	26	19	16
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		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	28	30	30	25	28	27	22	27	24	19
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		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	21	15	22	18	13	22	16	12	19	14	10	16	12	14
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		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	25	20	27	22	18	26	20	16
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		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28	33	33	28	33	33	28	33	33	28
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	D	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	17	24	21	16	11	19	14	24	18	13	21	16	11	19	14	10
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		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	20	15	24	17	13	21	15	11	18	13	10	16	11	13	14	10	11
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		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	29	23	30	26	21	29	22	18	28	19	15	27	16	13	24	14	12	21	12	10	19	11	14
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		27-45	Interior	35	35	35	35	35	35	35	35	35	35	34	34	34	31	33	33	28	32	32	26	30	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11	
			Exposed	35	35	31	35	35	28	35	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11
80	B	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15
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		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	18	13
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			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	25	29	27	21	26	23	18	23	20	16	20	18	14	18	16	12
	C	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
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		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
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		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	26	26	26	22	25	25	19	24	21	17	21	19	15
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	28	22	29	26	20	24	22	17	21	18	15	18	16	13	16	14	11	14	12	10	12	11	13
	D	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	14	21	18	13	21	16	11	19	14	10	17	12	13
			Exposed	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	20	14	21	19	13	21	16	11	18	13	12	16	12	12	14	10	11	12	14	10	11	12	8
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	18	21	20	15	21	17	13	21	15	11	18	13	10	16	11	13	14	10	11
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		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	22	18	26	19	15	25	16	13	24	14	12	21	12	10	19	11	14
			Exposed	26	26	26	26	26	23	26	25	21	26	22	19	26	20	17	26	19	15	26	17	14	25	14	12	21	12	10	18	11	13	16	14	12	14	12	10	12	11	9
		27-45	Interior	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	30	30	28	30	30	26	28	28	22	26	24	19	23	20	16	20	18	14	18	16	12	16	14	11
			Exposed	32	32	31	32	32	28	32	31	25	32	28	22	29	26	20	26	23	18	24	21	17	20	18	14	17	15	12	15	13	10	13	12	14	11	10	12	10	14	11

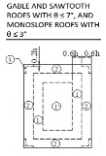
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

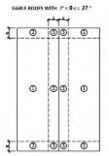
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

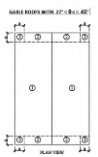
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

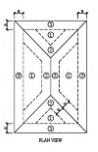












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

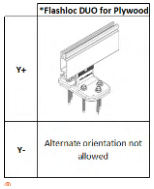
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	12	16	14	10	16	12	14			
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		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	16	19	17	14	19	15	12	19	13	11
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	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	17	11	17	14	10	17	12	13
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		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	24	24	22	23	23	19	22	20	16	20	18	14	18	16	12	16	14	11
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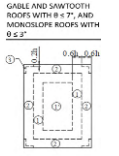
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

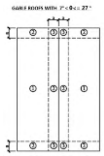
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

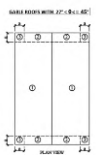
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

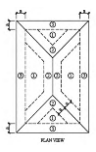












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

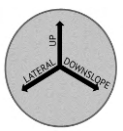
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

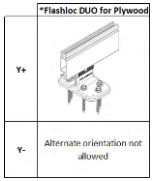
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	39	39	33	39	39	29	39	39	26	39	34	23	39	30	21	39	28	19	35	25	17	29	21	15	25	18	12	21	15	11	19	13	9	16	12	8	14	10	7
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		7-20	Interior	39	39	29	39	35	25	39	31	23	39	28	20	35	25	18	32	23	17	29	21	15	24	18	13	21	15	11	18	13	9	15	11	8	14	10	7	12	9	6
			Exposed	35	25	18	31	22	16	28	20	15	25	18	13	23	16	12	20	15	11	19	13	10	16	11	8	13	10	7	11	8	6	10	7	8	9	6	7	8	6	6
		20-27	Interior	40	40	35	40	40	31	40	34	28	40	30	25	40	27	22	40	25	20	40	23	19	33	19	16	28	16	13	24	14	11	21	12	10	18	11	9	16	9	8
			Exposed	40	27	22	40	24	20	40	22	18	34	19	16	31	18	14	28	16	13	25	15	12	21	12	10	18	10	9	16	9	7	14	8	6	12	7	6	11	6	6
		27-45	Interior	40	40	40	40	40	38	40	40	33	40	40	30	40	34	27	35	31	24	32	28	22	27	24	19	23	20	16	20	18	14	17	15	12	15	13	11	13	12	9
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	C	0-7	Interior	39	32	22	39	28	20	36	25	18	32	23	16	29	21	14	26	19	13	24	17	12	20	14	10	17	12	8	15	10	7	13	9	6	11	8	6	10	7	8
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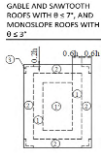
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

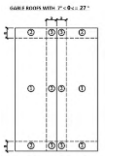
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

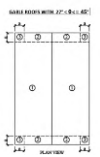
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

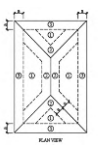












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

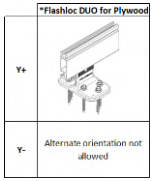
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	23	19	24	19	16	24	16	13	24	14	11	21	12	10	18	11	9	16	9	8
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		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	24	19	23	20	16	20	18	14	17	15	12	15	13	11	13	12	9
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		7-20	Interior	19	19	19	19	19	17	19	19	15	19	19	14	19	17	13	19	16	11	19	14	10	17	12	9	14	10	7	12	9	6	11	8	6	9	7	8	8	6	7
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		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	19	16	20	16	13	20	14	11	20	12	10	18	11	9	16	9	8
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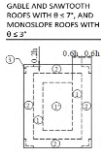
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

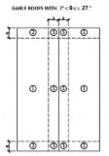
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

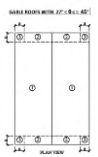
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

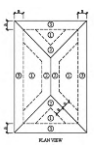












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

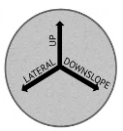
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

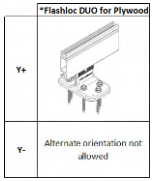
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		20-27	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	11	15	12	10	15	11	9	15	9	8	11	9	9	10	8	8
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		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	18	18	18	18	18	18	16	17	17	14	16	15	12	15	13	11	13	12	9	11	9	9
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		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9
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	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8
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			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	6	9	8	6	9	7	7	8	6	6	7	8	5	6	5	5
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8
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		27-45	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	14	13	13	13	11	12	12	9	12	10	8	10	9	7	9	8	6	8	7	6
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	D	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	10	10	7	10	9	6	10	8	8	9	7	7	8	6	6
			Exposed	10	10	10	10	10	10	10	10	9	10	10	8	10	10	8	10	10	7	10	9	6	10	8	8	9	6	6	7	5	6	7	5	5	8	6	4	7	5	4	6	4	4
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	9	10	10	7	10	8	6	10	7	8	9	6	7	8	5	6	7	8	5	6	4	4
			Exposed	10	10	10	10	10	9	10	10	8	10	10	7	10	9	7	10	8	6	10	8	6	9	6	7	8	5	6	6	5	6	7	5	4	7	5	3	6	5	3	5	3	3
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	10	13	11	9	13	9	7	12	8	6	12	7	6	10	6	8	9	8	7	8	6	5
			Exposed	13	13	13	13	13	12	13	13	11	13	13	9	13	13	10	13	13	9	13	12	8	12	7	6	9	8	6	9	8	6	7	6	5	8	5	4	7	5	3	5	3	3
		27-45	Interior	16	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	14	15	15	13	14	14	11	13	12	9	11	10	8	10	9	7	9	8	6	8	7	6	7	6	5
			Exposed	16	16	15	16	16	14	16	15	12	16	14	11	14	13	10	13	11	9	12	10	8	10	9	7	8	7	6	7	6	8	6	6	7	5	8	6	7	7	5	6	5	4

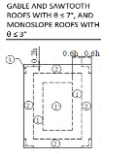
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

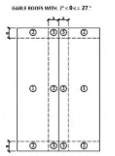
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

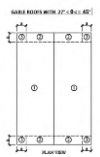
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

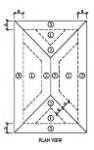












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

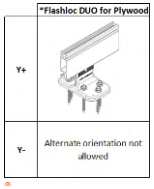
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	8	8	7	7
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	7	8	8	6	7	8	8	6
		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	16	13	18	14	12	18	14	12
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	16	13	18	14	11	18	12	10	18	11	9	16	9	8
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	14	17	15	12
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	19	17	14	17	15	12	15	13	10	13	12	9
	C	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	7	8
			Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	5	8	7	7	8	6	6	7	8	5	6	7	5
		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	7	8	8	6	7
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		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	17	18	18	14	17	16	13	16	14	11	14	12	10			
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	9	8	6	9	7	8	9	6	7	8	5	6	7	8	5
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		27-45	Interior	25	25	25	25	25	25	25	25	24	24	24	24	23	23	21	22	22	19	21	21	16	20	18	14	17	15	12	15	13	10	13	12	9	12	10	8			
			Exposed	25	25	23	25	25	21	25	24	19	24	21	17	21	19	15	20	17	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5
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		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6
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		20-27	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	12			
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	14	11	14	12	10	14	11	9	14	9	8
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	16			
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		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	8	8	6	8	7	7
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		7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	6	8	8	6	8	8	6	7	8	5	6	7	5
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		20-27	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	16	13	18	14	12	17	12	10	17	11	9	16	9	8	14	8	7
			Exposed	18	18	18	18	18	17	18	18	15	18	17	14	18	15	12	18	14	11	18	13	10	18	11	9	16	9	7	13	8	6	12	7	6	10	6	5	9	5	4
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	16	17	17	14	17	15	12	15	13	10	13	12	9	12	10	8
			Exposed	20	20	20	20	20	20	20	20	18	20	20	17	20	19	15	19	17	14	18	16	13	15	13	11	13	11	9	11	10	8	10	9	7	8	8	6	7	7	5

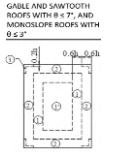
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

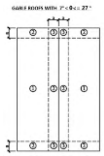
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

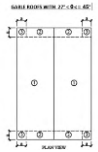
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

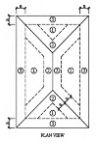












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

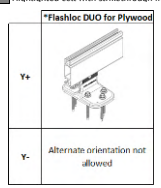
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	75	75	66	75	75	58	75	75	52	75	70	46	75	60	42	75	55	38	75	50	35	58	42	29	49	35	25	42	31	21	37	27	19	32	23	16	29	21	15
			Exposed	75	60	42	75	53	37	69	47	33	60	43	30	54	39	27	49	35	25	44	32	22	37	27	19	32	23	16	27	20	14	24	17	12	21	15	11	19	13	14
		7-20	Interior	76	76	57	76	76	51	76	62	45	76	56	41	76	50	37	64	46	33	58	41	30	48	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	76	50	37	62	44	32	55	40	29	50	36	26	45	32	24	41	29	22	37	27	20	31	23	17	27	19	14	23	17	12	20	15	11	18	13	14	16	11	13
		20-27	Interior	77	77	77	77	77	61	77	77	55	77	60	49	77	54	45	77	49	40	77	45	37	69	38	31	56	32	26	48	28	23	42	24	20	37	21	18	32	19	16
			Exposed	77	54	44	77	48	39	77	43	35	77	39	32	61	35	29	55	32	26	50	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	10
		27-45	Interior	78	78	78	78	78	78	78	78	68	78	78	59	78	78	53	78	62	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
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			Exposed	57	41	28	50	36	25	45	32	23	40	29	20	36	26	19	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10
		7-20	Interior	76	53	39	71	47	34	59	42	31	53	38	28	47	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	14	10	16	12	13
			Exposed	47	34	25	42	30	22	37	27	20	34	24	18	31	22	16	28	20	15	25	18	14	21	16	11	18	13	10	16	11	13	14	10	11	12	13	10	11	12	9
		20-27	Interior	77	57	47	77	51	42	77	46	37	77	41	34	65	37	30	59	34	28	53	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
			Exposed	65	37	30	57	33	27	51	29	24	46	26	22	41	24	20	38	22	18	34	20	16	29	17	14	25	14	12	21	12	10	19	11	14	16	15	12	14	13	11
		27-45	Interior	78	78	56	78	64	50	64	57	45	57	51	40	52	46	37	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
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		27-45	Interior	78	59	47	59	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	10	12	10	13	11
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		20-27	Interior	70	70	70	70	70	61	70	70	55	70	60	49	70	54	45	70	49	40	70	45	37	69	38	31	56	32	26	48	28	23	42	24	20	37	21	18	32	19	16
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		27-45	Interior	76	76	76	76	76	76	76	76	68	76	76	59	76	76	53	76	62	48	63	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
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	C	0-7	Interior	61	61	44	61	56	39	61	50	35	61	45	32	57	41	29	52	37	26	47	34	24	39	28	20	34	24	17	29	21	15	25	18	13	22	16	11	20	14	15
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		7-20	Interior	61	44	32	54	39	29	48	35	26	43	31	23	39	28	21	36	26	19	32	24	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	10	11
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		20-27	Interior	72	47	39	72	42	35	68	38	31	59	34	28	53	31	25	48	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	14
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		27-45	Interior	77	59	47	59	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
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		7-20	Interior	46	46	46	46	46	46	46	46	45	46	46	41	46	46	37	46	46	33	46	41	30	46	35	26	41	30	22	35	26	19	31	22	16	27	20	14	24	17	13
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		20-27	Interior	56	56	56	56	56	56	56	56	55	56	56	49	56	54	45	56	49	40	56	45	37	56	38	31	56	32	26	48	28	23	42	24	20	37	21	18	32	19	16
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		27-45	Interior	62	62	62	62	62	62	62	62	62	62	62	59	62	62	53	62	62	48	62	56	44	53	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
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		7-20	Interior	46	46	39	46	46	34	46	42	31	46	38	28	46	34	25	43	31	23	39	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	14	10	16	12	13
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		20-27	Interior	58	47	39	58	42	35	58	38	31	58	34	28	53	31	25	48	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	14
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		27-45	Interior	64	59	47	59	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	10	12	10	13	11

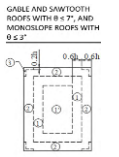
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

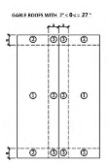
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

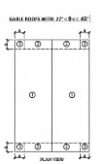
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

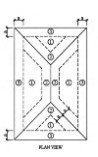












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

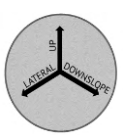
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

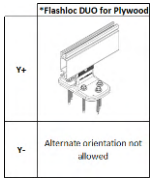
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	29	36	35	25	36	31	21	36	27	19	32	23	16	29	21	15
			Exposed	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	35	25	36	32	22	36	27	19	32	23	16	27	20	14	24	17	12	21	15	11	19	13	14
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	37	33	37	37	30	37	35	26	37	30	22	35	26	19	31	22	16	27	20	14	24	17	13
			Exposed	37	37	37	37	37	32	37	37	29	37	36	26	37	32	24	37	29	22	37	27	20	31	23	17	27	19	14	23	17	12	20	15	11	18	13	14	16	11	13
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	40	46	45	37	46	38	31	46	32	26	46	28	23	42	24	20	37	21	18	32	19	16
			Exposed	46	46	44	46	46	39	46	43	35	46	39	32	46	35	29	46	32	26	46	29	24	42	24	20	36	21	17	31	18	15	27	16	13	24	14	11	21	12	10
		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	44	52	47	37	45	40	32	39	35	27	34	30	24	30	27	21	26	24	19
			Exposed	52	52	52	52	52	47	52	52	42	52	48	38	49	44	35	45	40	31	41	36	29	34	31	24	29	26	21	25	23	18	22	20	16	19	17	14	17	15	12
	C	0-7	Interior	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	34	24	36	28	20	34	24	17	29	21	15	25	18	13	22	16	11	20	14	15
			Exposed	36	36	28	36	36	25	36	32	23	36	29	20	36	26	19	33	24	17	30	22	15	25	18	13	22	16	11	19	14	15	16	12	13	14	10	11	13	14	10
		7-20	Interior	37	37	37	37	37	34	37	37	31	37	37	28	37	34	25	37	31	23	37	28	21	33	24	18	28	20	15	24	18	13	21	15	11	19	14	10	16	12	13
			Exposed	37	34	25	37	30	22	37	27	20	34	24	18	31	22	16	28	20	15	25	18	14	21	16	11	18	13	14	15	11	12	13	14	11	13	10	11	12	9	
		20-27	Interior	46	46	46	46	46	42	46	46	37	46	41	34	46	37	30	46	34	28	46	31	25	45	26	21	38	22	18	33	19	16	29	17	14	25	15	12	22	13	11
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		27-45	Interior	52	52	52	52	52	50	52	52	45	52	51	40	52	46	37	47	42	33	43	38	30	36	32	26	31	28	22	27	24	19	23	21	17	21	18	15	18	16	13
			Exposed	52	46	36	46	41	32	41	37	29	37	33	26	34	30	24	31	27	22	28	25	20	24	21	17	20	18	14	17	16	12	15	14	11	13	12	14	12	11	13
	D	0-7	Interior	36	36	36	36	36	32	36	36	29	36	36	26	36	34	24	36	31	22	36	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
			Exposed	36	34	24	36	30	21	36	27	19	33	24	17	30	22	15	27	20	14	25	18	13	21	15	11	18	13	14	16	11	12	14	15	11	12	13	9	11	12	8
		7-20	Interior	37	37	32	37	37	29	37	35	26	37	31	23	37	28	21	36	26	19	32	24	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	10	11
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		20-27	Interior	49	47	39	49	42	35	49	38	31	49	34	28	49	31	25	48	28	23	44	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	14
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		27-45	Interior	55	55	47	55	53	41	53	47	37	48	42	33	43	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
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		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	34	26	34	30	22	34	26	19	31	22	16	27	20	14	24	17	13
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		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	38	31	39	32	26	39	28	23	39	24	20	37	21	18	32	19	16
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		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	37	43	40	32	39	35	27	34	30	24	30	27	21	26	24	19
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	D	0-7	Interior	36	36	36	36	36	36	36	36	29	36	36	26	36	34	24	36	31	22	36	28	20	33	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
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		7-20	Interior	36	36	32	36	36	29	36	35	26	36	31	23	36	28	21	36	26	19	32	24	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	10	11
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		20-27	Interior	42	42	39	42	42	35	42	38	31	42	34	28	42	31	25	42	28	23	42	25	21	37	21	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	14
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		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	32	26	34	28	23	34	24	20	33	21	18	32	19	16
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		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	38	38	32	37	35	27	34	30	24	30	27	21	26	24	19
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	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	24	29	29	17	29	21	15	25	18	13	22	16	11	20	14	15
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	D	0-7	Interior	31	31	31	31	31	31	31	31	29	31	31	26	31	31	24	31	31	22	31	28	20	31	24	17	28	20	14	24	17	12	21	15	11	18	13	14	16	12	13
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		7-20	Interior	32	32	32	32	32	29	32	32	26	32	31	23	32	28	21	32	26	19	32	24	17	27	20	15	23	17	12	20	15	11	18	13	14	15	11	13	14	10	11
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		20-27	Interior	37	37	37	37	37	35	37	37	31	37	34	28	37	31	25	37	28	23	37	25	21	36	21	18	32	18	15	27	16	13	24	14	11	21	12	10	19	11	14
			Exposed	37	31	25	37	27	22	37	24	20	37	22	18	34	20	16	31	18	15	28	17	14	24	14	12	21	12	10	18	10	13	15	14	11	14	12	10	12	11	9
		27-45	Interior	43	43	43	43	43	41	43	43	37	41	41	33	40	38	30	39	35	28	36	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	14	11
			Exposed	43	38	30	38	34	27	34	31	24	31	28	22	28	25	20	25	23	18	23	21	16	20	18	14	17	15	12	15	13	10	13	11	14	11	10	12	10	13	11

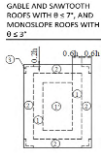
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

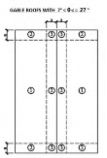
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

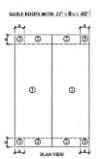
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

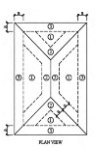












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

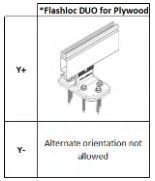
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
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				Roof Wind Zone																																						
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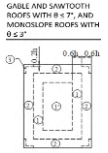
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

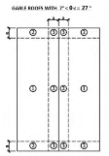
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

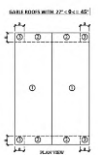
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

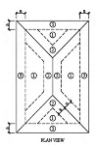












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Plywood
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

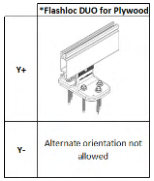
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	15	11	17	14	10	16	12	13
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		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	25	21	28	22	18	28	20	16
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		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	15	11	17	13	14	15	11	12	13	14	10	11
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		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	38	38	38	38	38	38	36	36	32	34	34	28	33	30	24	29	26	21	26	23	18	23	21	16
			Exposed	40	40	40	40	40	40	40	40	37	40	40	33	39	38	30	38	34	27	35	32	25	30	27	21	26	23	18	22	20	16	19	17	14	17	15	12	15	13	11

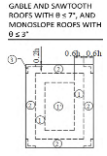
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

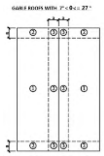
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

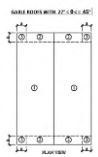
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

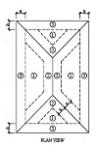












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

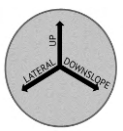
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

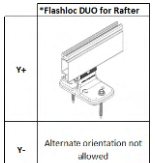
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	93	127	127	80	127	102	60	127	79	47	112	63	39	84	52	34	69	43	30	57	38	27
			Exposed	127	127	124	127	127	89	127	127	74	127	111	63	127	89	54	127	77	46	124	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	82	127	127	69	127	89	51	127	66	40	94	51	35	71	41	30	56	36	27	45	32	24
			Exposed	127	127	99	127	127	78	127	127	64	127	93	53	127	77	44	127	64	40	126	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	127	128	128	73	128	78	54	128	59	42	126	46	37	89	39	32	73	35	29
			Exposed	128	128	128	128	128	128	128	128	95	128	128	76	128	92	63	128	76	53	128	64	45	127	47	37	86	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	98	129	124	73	129	82	57	89	65	45	68	53	39	54	44	34
			Exposed	129	129	129	129	129	129	129	129	129	129	129	124	129	129	129	129	123	72	129	89	61	91	67	46	66	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	127	127	127	127	127	98	127	127	81	127	125	69	127	98	59	127	84	51	127	73	44	93	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
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		7-20	Interior	127	127	127	127	127	88	127	127	71	127	126	58	127	86	49	127	71	42	127	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	127	85	49	127	68	41	127	56	37	85	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	86	128	126	70	128	85	59	128	71	50	128	52	39	95	41	34	74	35	29	59	31	25	48	27	22	41	24	20
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			Exposed	127	73	44	103	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	127	127	76	127	127	61	127	89	50	127	72	42	127	60	38	95	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	127	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	128	128	128	128	128	91	128	128	73	128	86	59	128	71	50	128	59	42	128	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
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		27-45	Interior	129	129	129	129	129	129	129	129	98	129	127	80	129	98	67	129	83	57	99	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	129	97	67	129	80	55	90	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	93	119	119	80	119	102	60	119	79	47	105	63	39	84	52	34	69	43	30	57	38	27
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		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	82	119	119	69	119	89	51	119	66	40	94	51	35	71	41	30	56	36	27	45	32	24
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		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	98	127	124	73	127	82	57	89	65	45	68	53	39	54	44	34
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	C	0-7	Interior	119	119	87	119	119	72	119	101	60	119	85	51	119	73	44	114	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	119	73	44	103	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	119	119	76	119	119	61	119	89	50	119	72	42	119	60	38	95	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	119	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	126	126	126	126	126	91	126	126	73	126	86	59	126	71	50	126	59	42	126	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	126	70	49	126	57	41	126	47	37	95	40	33	80	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	18	22	20	~~16~~
		27-45	Interior	128	128	128	128	128	128	128	128	98	128	127	80	128	98	67	128	83	57	99	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	128	97	67	128	80	55	90	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	93	105	105	80	105	102	60	105	79	47	105	63	39	84	52	34	69	43	30	57	38	27
			Exposed	105	105	105	105	105	89	105	105	74	105	105	63	105	89	54	105	77	46	105	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	82	105	105	69	105	89	51	105	66	40	94	51	35	71	41	30	56	36	27	45	32	24
			Exposed	105	105	99	105	105	78	105	105	64	105	93	53	105	77	44	105	64	40	105	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	73	115	78	54	115	59	42	115	46	37	89	39	32	73	35	29
			Exposed	115	115	115	115	115	115	115	115	95	115	115	76	115	92	63	115	76	53	115	64	45	115	47	37	86	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	85	112*	112*	72	112*	89	61	91	67	46	66	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	105	105	105	105	105	98	105	105	81	105	105	69	105	98	59	105	84	51	105	73	44	93	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	105	97	58	105	81	49	105	69	42	97	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	105	105	105	105	105	88	105	105	71	105	105	58	105	86	49	105	71	42	105	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	105	85	49	105	68	41	105	56	37	85	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	86	115	115	70	115	85	59	115	71	50	115	52	39	95	41	34	74	35	29	59	31	25	48	27	22	41	24	20
			Exposed	115	115	70	115	81	56	115	65	46	115	54	40	115	45	36	93	40	33	80	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	95	112*	112*	79	112*	98	67	112*	73	50	73	57	40	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	112*	112*	94	112*	112*	76	112*	91	62	112*	76	52	87	64	44	72	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	105	105	87	105	105	72	105	101	60	105	85	51	105	73	44	105	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	105	73	44	103	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	105	105	76	105	105	61	105	89	50	105	72	42	105	60	38	95	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	105	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	117	117	117	117	117	91	117	117	73	117	86	59	117	71	50	117	59	42	117	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	117	70	49	117	57	41	117	47	37	95	40	33	80	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	116	116	116	116	116	116	116	116	98	116	116	80	116	98	67	116	83	57	99	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	116	97	67	116	80	55	90	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

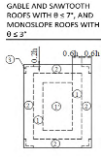
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

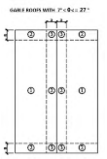
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

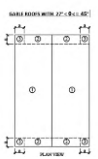
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

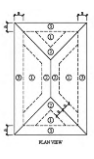












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

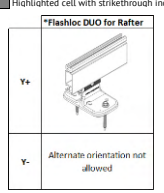
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	80	94	94	60	94	52	34	69	43	30	57	38	27						
			Exposed	94	94	94	94	94	89	94	94	74	94	94	63	94	89	54	94	77	46	94	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	82	94	94	69	94	89	51	94	66	40	94	51	35	71	41	30	56	36	27	45	32	24
			Exposed	94	94	94	94	94	78	94	94	64	94	93	53	94	77	44	94	64	40	94	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	73	100*	78	54	100*	59	42	100*	46	37	89*	39	32	73	35	29
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	95*	100*	100*	76	100*	92*	63	100*	76	53	100*	64	45	100*	47	37	86	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	73	95*	83*	57	89*	65	45	68	53	39	54	44	34
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	73	95*	83*	57	89*	65	45	68	53	39
	C	0-7	Interior	94	94	94	94	94	94	94	94	81	94	94	69	94	94	59	94	84	51	94	73	44	93	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	94	94	58	94	81	49	94	69	42	94	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	94	94	94	94	94	88	94	94	71	94	94	54	94	86	49	94	71	42	94	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	94	85	49	94	68	41	94	56	37	85	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	86	100*	100*	70	100*	85	59	100*	71	50	100*	52	39	95*	41	34	74	35	29	59	31	25	48	27	22	41	24	20
			Exposed	100*	100*	70	100*	81	56	100*	65	46	100*	54	40	100*	45	36	93*	40	33	80	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	79	95*	95*	67	95*	73	50	73	57	40	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	95*	95*	94*	95*	95*	76	95*	91*	62	95*	76	52	87*	64	44	72	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	94	94	87	94	94	72	94	94	60	94	85	51	94	73	44	94	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	94	73	44	94	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	94	94	76	94	94	61	94	89	50	94	72	42	94	60	38	94	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	94	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	104*	104*	104*	104*	104*	91	104*	104*	73	104*	86	59	104*	71	50	104*	59	42	104*	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	104*	70	49	104*	57	41	104*	47	37	95	40	33	80	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	98*	100*	100*	80	100*	98*	67	100*	83	57	99*	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	100*	97*	67	100*	80	55	91*	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	80	90	90	60	90	79	47	90	63	39	84	52	34	69	43	30	57	38	27
			Exposed	90	90	90	90	90	89	90	90	74	90	90	63	90	89	54	90	77	46	90	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	82	94*	94*	69	94*	89*	51	94*	66	40	94*	51	35	71	41	30	56	36	27	45	32	24
			Exposed	94*	94*	94*	94*	94*	78	94*	94*	64	94*	93*	53	94*	77	44	94*	64	40	94*	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	73*	80*	78*	54	80*	59	42	80*	46	37	80*	39	32	73*	35	29
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	76*	80*	80*	63	80*	76*	53	80*	64	45	80*	47	37	80*	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	57	75*	66*	45	68*	53	39	54	44	34
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	61	75*	67*	46	66*	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	90	90	90	90	90	90	90	90	81	90	90	69	90	90	59	90	84	51	90	73	44	90	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	90	90	58	90	81	49	90	69	42	90	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	94*	94*	94*	94*	94*	88*	94*	94*	71	94*	94*	58	94*	86*	49	94*	71	42	94*	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	94*	85*	49	94*	68	41	94*	56	37	85*	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	70*	80*	80*	59	80*	71*	50	80*	52	39	80*	41	34	74*	35	29	59	31	25	48	27	22	41	24	20
			Exposed	80*	80*	70*	80*	80*	56	80*	65	46	80*	54	40	80*	45	36	80*	40	33	80*	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	68*	75*	73*	50	73*	57	40	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	62	75*	75*	52	75*	65*	44	72*	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	93	93	87	93	93	72	93	93	60	93	85	51	93	73	44	93	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	93	73	44	93	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	97*	97*	76	97*	97*	61	97*	89	50	97*	72	42	97*	60	38	95*	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	97*	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	73	88*	86*	59	88*	71	50	88*	59	42	88*	50	39	88*	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	88*	70	49	88*	57	41	88*	47	37	88*	40	33	80*	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	82*	82*	67	82*	82*	55	82*	66	46	73*	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
			Exposed	82*	82*	67	82*	80*	55	82*	66	46	73*	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	84	84	60	84	79	47	84	63	39	84	52	34	69	43	30	57	38	27
			Exposed	84	84	84	84	84	84	84	84	74	84	84	63	84	84	54	84	77	46	84	67	41	84	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	69*	80*	80*	51	80*	66	40	80*	51	35	71*	41	30	56	36	27	45	32	24
			Exposed	80*	80*	80*	80*	80*	78*	80*	80*	64	80*	80*	53	80*	77*	44	80*	64	40	80*	55	36	72*	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	54	66*	66*	54	66*	59*	42	66*	46	37	66*	39	32	66*	35	29
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	63*	66*	66*	53	66*	64*	45	66*	47	37	66*	38	32	66*	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	42	62*	62*	45	62*	54*	39	54*	44	34
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	62*	62*	46	62*	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	84	84	84	84	84	84	84	84	81	84	84	69	84	84	59	84	84	51	84	73	44	84	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	84	84	58	84	81	49	84	69	42	84	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	71*	80*	80*	58	80*	80*	49	80*	71*	42	80*	60	38	80*	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	80*	80*	49	80*	68*	41	80*	56	37	80*	47	33	70*	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	59*	66*	66*	50	66*	52	39	66*	41	34	66*	35	29	59*	31	25	48	27	22	41	24	20
			Exposed	66*	66*	66*	66*	66*	56	66*	66*	46	66*	54	40	66*	45	36	66*	40	33	66*	37	30	60*	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	50	62*	57*	40	56*	45	35	43	39	31	38	34	27	34	30	24
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	53*	62*	62*	44	62*	56*	40	60*	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	87	87	87	87	87	72	87	87	60	87	85	51	87	73	44	87	64	40	87	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	87	73	44	87	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	88*	88*	76*	88*	88*	61	88*	88*	50	88*	72	42	88*	60	38	88*	51	35	79*	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	88*	60	38	88*	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	59	72*	71*	50	72*	59	42	72*	50	39	72*	40	33	69*	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	72*	70*	49	72*	57	41	72*	47	37	72*	40	33	72*	37	30	68*	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	57	68*	68*	49	68*	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	68*	68*	67*	68*	68*	55	68*	66*	46	68*	56	40	60*	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

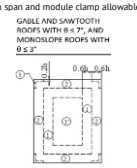
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

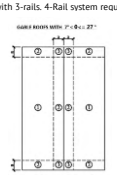
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

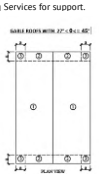
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

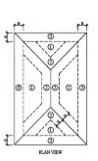












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

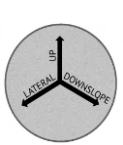
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

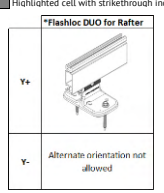
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	60	77	77	47	77	63	39	77	52	34	69	43	30	57	38	27
			Exposed	77	77	77	77	77	77	77	77	74	77	77	63	77	77	54	77	77	46	77	67	41	77	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	51	67*	66*	40	67*	51	35	67*	41	30	56	36	27	45	32	24
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	64*	67*	67*	53	67*	67*	44	67*	64*	40	67*	55	36	67*	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	54*	56*	56*	42	56*	56*	42	56*	46	37	56*	39	32	56*	35	29
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	56*	45	56*	47	37	56*	38	32	56*	33	27	54*	29	24	44	26	21	39	23	19
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	53*	39	53*	44	34			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	52*	38	50*	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	69	77	77	59	77	77	51	77	73	44	77	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	77	77	58	77	77	49	77	69	42	77	59	38	77	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	58*	67*	67*	49	67*	67*	42	67*	60*	38	67*	45	32	60*	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	67*	67*	49	67*	67*	41	67*	56	37	67*	47	33	67*	41	30	58*	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	52*	39	56*	41	34	56*	35	29	56*	31	25	48*	27	22	41	24	20
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	46	56*	54*	40	56*	45	36	56*	40	33	56*	37	30	56*	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	40	53*	45	35	43	39	31	38	34	27	34	30	24
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	44	53*	53*	40	53*	48*	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	81	81	81	81	81	72	81	81	60	81	81	51	81	73	44	81	64	40	81	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	81	73	44	81	61	39	81	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	74*	74*	74*	74*	74*	61	74*	74*	50	74*	72*	42	74*	60	38	74*	51	35	74*	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	74*	60	38	74*	49	34	72*	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	59*	61*	61*	50	61*	59*	42	61*	50	39	61*	40	33	61*	34	28	55*	29	24	44	26	21	38	23	19	34	20	25
			Exposed	61*	61*	49	61*	57*	41	61*	47	37	61*	40	33	61*	37	30	61*	33	28	59*	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	58*	58*	50*	58*	54*	39	52*	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	58*	58*	58*	58*	58*	55*	58*	58*	46	58*	56*	40	58*	48	36	51*	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
70	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	60	70	70	47	70	63	39	70	52	34	69	43	30	57	38	27
			Exposed	70	70	70	70	70	70	70	70	70	70	70	63	70	70	54	70	70	46	70	67	41	70	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	51*	58*	58*	40	58*	51*	35	58*	41	30	56*	36	27	45	32	24
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	53*	58*	58*	44	58*	58*	40	58*	55*	36	58*	42	31	54*	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	46*	37	48*	39	32	48*	35	29
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	47*	37	48*	38	32	48*	33	27	48*	29	24	44*	26	21	39	23	19
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	39	46*	44*	34
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	38	46*	42*	33	41*	36	29	36	32	25	32	29	23
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	69	70	70	59	70	70	51	70	70	44	70	57	37	70	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	70	70	58	70	70	49	70	69	42	70	59	38	70	51	34	70	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49	58*	58*	42	58*	58*	38	58*	45	32	58*	38	28	46	32	24	39	28	21	34	25	19
			Exposed	58*	58*	49	58*	58*	41	58*	56*	37	58*	47	33	58*	41	30	58*	37	27	50*	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41	48*	48*	39	48*	41	34	48*	34	24
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	40	48*	45*	36	48*	40	33	48*	37	30	48*	31	26	47*	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	45*	35	43*	39	31	38	34	27	34	30	24
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	40*	46*	46*	40*	46*	46*	36	44*	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	75	75	75	75	75	72	75	75	60	75	75	51	75	73	44	75	64	40	75	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	75	73	44	75	61	39	75	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	64*	64*	64*	64*	64*	61*	64*	64*	50	64*	64*	42	64*	60*	38	64*	51	35	64*	44	32	57*	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	64*	60*	38	64*	49	34	64*	41	31	59*	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	42	53*	50*	39	53*	40	33	53*	34	28	53*	29	24	44	26	21	38	23	19	34	20	25
			Exposed	53*	53*	49*	53*	53*	41	53*	47*	37	53*	40	33	53*	37	30	53*	33	28	53*	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	24	20	~~16~~
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	49*	50*	50*	39	50*	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	40	50*	48*	36	50*	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
80	B	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	62	47	62	62	39	62	52	34	62	43	30	57	38	27
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	54	62	62	46	62	62	41	62	52	35	62	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	40	51*	51*	35	51*	41	30	51*	36	27	45*	32	24
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	44	51*	51*	40	51*	51*	36	51*	42	31	62	52	35	62	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	32	43*	35	29			
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	38*	32	43*	33	27	43*	29	24	43*	26	21	39*	23	19
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	35*			
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	40*	33	40*	37*	29	36*	32	25	32	29	23
	C	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	51	62	62	44	62	57	37	62	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	62	62	58	62	62	49	62	62	42	62	59	38	62	51	34	62	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	49*	51*	51*	42	51*	51*	38	51*	45	32	46*	32	24	39	28	21	34	25	19	30	22	25
			Exposed	51*	51*	49*	51*	51*	41	51*	51*	37	51*	47*	33	51*	41	30	51*	37	27	50*	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	41*	34	43*	35	29	43*	31	25	43*	27	22	41*	24	20
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	36	43*	40*	33	43*	37*	30	43*	31	26	43*	27	22	39*	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	37*	40*	39*	31	37*	33	26	32	29	23	28	25	20	25	22	18
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33	40*	37*	29	36*	32	25	32	29	23
	D	0-7	Interior	69	69	69	69	69	69	69	69	60	69	69	51	69	69	44	69	64	40	69	56	36	69	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	69	69	44	69	61	39	69	52	35	69	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	50*	57*	57*	42	57*	57*	38	57*	51*	35	57*	44	32	57*	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	57*	57*	38	57*	49*	34	57*	41	31	57*	37	28	50*	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	39	47*	40	33	47*	34	28	47*	29	24	44*	26	21	38	23	19	34	20	25
			Exposed	47*	47*	47*	47*	47*	41*	47*	47*	37	47*	40	33	47*	37	30	47*	33	28	47*	31	25	45*	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	42*	34	41*	37	29	36	32	25	32	28	22	28	25	20
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	45*	36	45*	42*	33	43*	39*	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

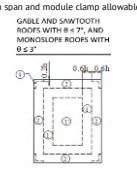
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

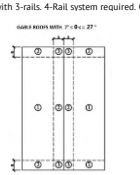
10 Highlighted cell indicates 3-rail system span. Contact Unirac Engineering Services for support.

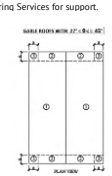
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

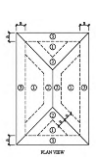












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

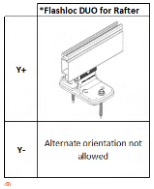
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	47	55	55	39	55	52	34	55	43	30	55	38	27
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	55	55	46	55	55	41	55	52	35	55	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	46*	35	46*	41*	30	46*	36	27	45*	32	24
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	40*	46*	46*	36	46*	42*	31	46*	36	26	42*	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	32	38*	35*	29
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	32	38*	33*	27	38*	29	24	38*	26	21	38*	33	19
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	29	36*	32*	25	32*	29	23
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	44	55	55	37	55	45	31	55	39	27	48	34	24	41	30	21	36	26	19
			Exposed	55	55	55	55	55	49	55	55	42	55	55	38	55	51	34	55	45	31	55	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	45*	32	46*	38	28	46*	32	24	39	28	21	34	25	19	30	22	25
			Exposed	46*	46*	46*	46*	46*	41*	46*	46*	37	46*	46*	33	46*	41*	30	46*	37	27	46*	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	35*	29	38*	31	25	38*	27	22	38*	24	20
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	37*	30	38*	31	26	38*	27	22	38*	23	19	34*	20	25	30	18	22	27	24	20
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	31	36*	34*	27	34*	30	24
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	31	36*	33*	26	32*	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	61	61	61	61	61	61	61	60	61	61	51	61	61	44	61	61	40	61	56	36	61	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	61	61	44	61	61	39	61	52	35	61	45	31	61	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	42	51*	51*	38	51*	51*	35	51*	44*	32	51*	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	51*	51*	38	51*	49*	34	51*	41	31	51*	37	28	50*	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	39*	42*	40*	33	42*	34	28	42*	29	24	42*	26	21	38*	23	19	34	20	25
			Exposed	42*	42*	42*	42*	42*	41*	42*	42*	37*	42*	40*	33	42*	37*	30	42*	33	28	42*	31	25	42*	26	21	38*	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	34	40*	37*	29	36*	32	25	32	28	22	28	25	20
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	33	40*	38*	30	36*	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
100	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	39	50	50	34	50	43	30	50	38	27
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	50	41	50	50	35	50	42	30	50	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	35	42*	41*	30	42*	36*	27	42*	32	24
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	36*	42*	42*	31	42*	36*	26	42*	31	23	37*	27	20	32	24	18	29	21	24
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	34*	29	34*	34*	29
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	33*	27	34*	29	24	34*	26	21	34*	23	19
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	29*	33*	32*	25	32*	29*	23
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	37	50	45	31	50	39	27	48	34	24	41	30	21	36	26	19
			Exposed	50	50	50	50	50	49	50	50	42	50	50	38	50	50	34	50	45	31	50	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	32	42*	32	24	39*	28	21	34	25	18	29	21	24	25	19	22
			Exposed	42*	42*	42*	42*	42*	41*	42*	42*	37*	42*	42*	33	42*	41*	30	42*	37*	27	42*	34	25	39*	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	31*	34*	34*	29	34*	34*	29
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	33*	34*	34*	30*	34*	31*	26	34*	27	22	34*	23	19	34*	20	25	30*	18	22	27	24	20
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	33*	26	32*	29*	23	28	25	20
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	33*	26	32*	29*	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	55	55	55	55	55	55	55	55	55	51	55	55	44	55	55	40	55	55	36	55	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	55	55	44	55	55	39	55	52	35	55	45	31	55	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	46*	35	46*	46*	32	46*	37	27	43*	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	46*	46*	38	46*	46*	34	46*	41*	31	46*	37	28	46*	34	25	42*	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	34*	28	38*	29	24	38*	26	21	38*	23	19	34*	20	25
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	33*	38*	37*	30	38*	33*	28	38*	31	25	38*	26	21	38*	22	18	33*	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	29	36*	32*	25	32*	28	22	28	25	20
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	30	36*	33*	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

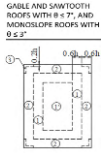
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

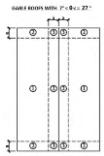
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

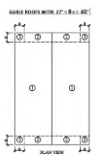
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

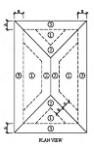












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

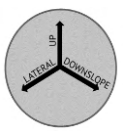
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

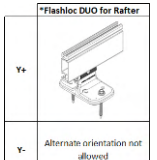
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	146	150	150	134	150	141	124	150	132	69	145	124	58	136	85	51	128	64	45
			Exposed	150	150	150	150	150	150	150	150	143	150	150	136	150	147	129	150	141	123	150	135	80	146	124	59	135	81	50	126	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	136	151	147	124	151	135	59	151	125	51	141	62	45	131	54	40
			Exposed	151	151	151	151	151	151	151	151	147	151	151	138	151	151	130	151	146	77	151	138	61	151	125	52	139	60	44	128	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	144	129	151	133	62	151	70	54	143	58	48			
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	140	151	148	133	151	133	62	151	65	53	140	56	46	130	49	41	113	43	36	65	38	32
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	149	152	150	137	152	139	128	152	130	66	142	121	58			
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	141	152	140	128	152	129	64	138	88	56	128	61	49	60	54	43	54	48	38
	C	0-7	Interior	150	150	150	150	150	150	150	150	147	150	150	140	150	150	133	150	144	127	150	138	102	150	128	62	139	95	53	129	65	46	109	57	40	74	50	35	61	44	31
			Exposed	150	150	132	150	143	125	150	135	84	150	129	63	144	123	57	138	91	52	132	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	142	151	151	134	151	151	127	151	143	65	151	129	55	144	63	47	132	55	41	67	48	36	58	42	31	51	37	42
			Exposed	151	151	134	151	149	125	151	139	62	151	131	56	151	124	51	143	62	46	135	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	145	151	151	137	151	138	71	151	126	57	144	59	49	134	52	43	126	46	38	80	41	34
			Exposed	151	151	151	151	151	143	151	149	134	151	140	126	151	151	132	151	125	56	147	62	51	135	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	145	152	152	145	152	144	132	152	133	81	143	124	59	132	65	51	64	57	45	57	51	40
			Exposed	152	152	152	152	152	151	152	152	142	152	146	134	152	139	127	152	132	75	148	126	61	133	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	150	150	150	150	150	142	150	150	134	150	145	127	150	138	101	150	132	70	149	127	61	137	87	52	127	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	150	138	99	150	131	65	145	124	58	138	93	53	132	71	48	126	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	128	151	143	65	151	135	59	151	128	54	142	61	46	129	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	151	142	64	151	133	57	151	125	52	144	63	47	135	57	42	128	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	146	151	151	137	151	144	130	151	137	65	151	138	76	151	141	57	131	49	41	112	43	36	65	38	32	57	34	42
			Exposed	151	151	137	151	142	128	151	133	62	151	125	56	147	62	51	140	56	47	134	51	43	123	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	150	152	152	143	152	131	69	140	97	57	128	62	49	60	54	43	53	48	38	47	42	34
			Exposed	152	152	145	152	148	136	152	140	128	152	133	78	147	126	61	139	90	56	131	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	124	141	132	69	141	124	58	136	85	51	128	64	45
			Exposed	141	141	141	141	141	141	141	141	141	141	141	136	141	141	129	141	141	123	141	135	80	141	124	59	135	81	50	126	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	124	141	135	59	141	125	51	141	61	45	131	54	40
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	130	141	141	77	141	138	61	141	125	52	139	60	44	128	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	144	129	147	133	62	147	70	54	143	58	48			
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	140	147	147	133	147	133	62	147	65	53	140	56	46	130	49	41	113	43	36	65	38	32
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	150	137	151	139	128	151	130	66	142	121	58			
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	151	141	151	140	128	151	129	64	138	88	56	128	61	49	60	54	43	54	48	38
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	138	102	141	128	62	139	95	53	129	65	46	109	57	40	74	50	35	61	44	31
			Exposed	141	141	132	141	141	125	141	135	84	141	129	63	141	123	57	138	91	52	132	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	127	141	141	65	141	129	55	141	63	47	132	55	41	67	48	36	58	42	31	51	37	42
			Exposed	141	141	134	141	141	125	141	139	62	141	131	56	141	124	51	141	62	46	135	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	129	147	133	62	147	70	54	143	58	48			
			Exposed	147	147	147	147	147	143	147	147	134	147	140	126	147	132	61	147	125	56	147	62	51	135	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	151	145	151	144	132	151	133	81	143	124	59	132	65	51	64	57	45	57	51	40
			Exposed	151	151	151	151	151	151	151	151	142	151	146	134	151	139	127	151	132	75	148	126	61	133	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	138	102	141	128	62	139	95	53	129	65	46	109	57	40	74	50	35	61	44	31
			Exposed	141	138	99	141	131	65	141	124	58	138	93	53	132	71	48	126	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	128	141	141	128	141	141	127	141	141	65	141	129	55	141	63	47	132	55	41	67	48	36	58	42	31	51	37	42
			Exposed	141	141	132	141	141	125	141	135	84	141	129	63	141	123	57	138	91	52	132	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	129	147	133	62	147	70	54	143	58	48			
			Exposed	147	147	147	147	147	143	147	147	134	147	140	126	147	132	61	147	125	56	147	62	51	135	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	151	145	151	144	132	151	133	81	143	124	59	132	65	51	64	57	45	57	51	40
			Exposed	151	151	151	151	151	151	151	151	142	151	146	134	151	139	127	151	132	75	148	126	61	133	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	124	127	127	69	127	124	58	127	85	51	127	64	45
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	80	127	124	59	127	81	50	126	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	124	128	128	59	128	125	51	128	61	45	128	54	40
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	77	128	128	61	128	125	52	128	60	44	128	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136			
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	133	62	136	65	53	136	56	46	130	49	41	113	43	36	65	38	32
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	141	141	139	128	141	130	66	140	121	58					
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	140	128	141	129	64	138	88	56	128	61	49	60	54	43	54	48	38		
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	102	127	127	62	127	65	46	109	57	40
			Exposed	127	127	127	127	127	125	127	127	84	127	127	63	127	123	57	127	91	52	127	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	127	128	128	65	128	128	55	128	63	47	128	65	41	67	48	36	58	42	31	51	37	42
			Exposed	128	128	128	128	128	125	128	128	62	128	128	56	128	124	51	128	62	46	128	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	71	136	126	57	136	59	49	134	52	43
			Exposed	136	136	136	136	136	136	136	136	134	136	136	126	136	132	61	136	125	56	136	62	51	135	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	132	141	141	133	81	140	124	59	132	65	51	64	57	45	57	51	40
			Exposed	141	141	141	141	141	141	141	141	141	141	141	134	141	139	127	141	132	75	141	126	61	133	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	101	127	127	70	127	127	61	127	87	52	127	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	127	127	99	127	127	65	127	124	58	127	93	53	127	71	48	126	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	65	128	128	59	128	128	54	128	61	46	128	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	128	128	64	128	128	57	128	125	52	128	63	47	128	57	42	128	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	137	138	138	130	138	137	65	138	76	55	138	57	47	131	49	41	112	43	36	65	38	32	57	34	42
			Exposed	138	138	137	138	138	128	138	133	62	138	125	56	138	62	51	138	56	47	134	51	43	123	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	138	143	143	131	143	131	69	140	97	57	128	62	49	60	54	43	53	48	38	47	42	34
			Exposed	143	143	143	143	143	136	143	140	128	143	133	78	143	126	61	139	90	56	131	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34

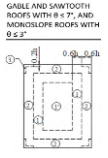
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

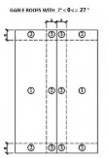
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

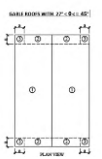
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

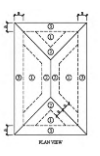












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

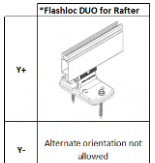
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	58	118	85	51	118	64	45
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	80	118	118	59	118	81	50	118	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	59	119	119	119	119	119	119	119	51	119	61	45	119	54	40
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	77	119	119	61	119	119	52	119	60	44	119	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	62	128	70	54	128	58	48
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	62	128	65	53	128	56	46	128	49	41	113	43	36	65	38	32
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	66	124	121	58
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	64	124	88	56	124	61	49	60	54	43	54	48	38			
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	102	118	118	62	118	95	53	118	65	46	109	57	40	74	50	35	61	44	31
			Exposed	118	118	118	118	118	118	118	118	84	118	118	63	118	118	57	118	91	52	118	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	119	55	119	63	47	119	55	41	67	48	36	58	42	31	51	37	42
			Exposed	119	119	119	119	119	119	119	119	62	119	119	56	119	119	51	119	62	46	119	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	71	128	126	57	128	59	49	128	52	43	126	46	38	80	41	34
			Exposed	128	128	128	128	128	128	128	128	128	128	128	126	128	128	61	128	125	56	128	62	51	128	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	81	124	124	59	124	65	51	64	57	45	57	51	40
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	75	124	124	61	124	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	118	70	118	118	61	118	87	52	118	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	118	118	99	118	118	65	118	118	58	118	93	53	118	71	48	118	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	119	59	119	119	54	119	61	46	119	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	119	119	64	119	119	57	119	119	52	119	63	47	119	57	42	119	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	65	130	76	55	130	57	47	130	49	41	112	43	36	65	38	32	57	34	42
			Exposed	130	130	130	130	130	128	130	130	62	130	125	56	130	62	51	130	56	47	130	51	43	123	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	60	129	97	57	128	62	49	60	54	43	53	48	38	47	42	34
			Exposed	129	129	129	129	129	129	129	128	129	129	78	129	126	61	129	90	56	129	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34	
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	58	115	85	51	115	64	45
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	80	115	115	59	115	81	50	115	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	59	116	116	51	116	61	45	116	54	40
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	77	116	116	61	116	116	52	116	60	44	116	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	62	114*	70	54	114*	58	48
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	62	114*	114*	114*	114*	114*	114*	114*	49	41	113	43	36	65	38	32
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	66	110*	110*	58
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	64	110*	88	56	110*	61	49	60	54	43	54	48	38			
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	102	115	115	62	115	95	53	115	65	46	109	57	40	74	50	35	61	44	31
			Exposed	115	115	115	115	115	115	115	115	84	115	115	63	115	115	57	115	91	52	115	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	65	116	116	55	116	63	47	116	55	41	67	48	36	58	42	31	51	37	42
			Exposed	116	116	116	116	116	116	116	116	62	116	116	56	116	116	51	116	62	46	116	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	71	114*	114*	57	114*	59	49	114*	52	43	114*	46	38	80	41	34
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	61	114*	114*	56	114*	62	51	114*	52	43	114*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	81	110*	110*	59	110*	65	51	64	57	45	57	51	40
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	75	110*	110*	61	110*	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	118	70	118	118	61	118	87	52	118	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	118	118	99	118	118	65	118	118	58	118	93	53	118	71	48	118	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	119	59	119	119	54	119	61	46	119	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	119	119	64	119	119	57	119	119	52	119	63	47	119	57	42	119	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	76	55	119	57	47	119	49	41	112	43	36	65	38	32	57	34	42
			Exposed	119	119	119	119	119	119	119	119	62	119	119	56	119	119	51	119	119	77	119	119	61	119	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
		27-45	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	69	115	97	57	115	62	49	60	54	43	53	48	38	47	42	34
			Exposed	115	115	115	115	115	115	115	115	115	115	78	115	115	61	115	90	56	115	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34	
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	69	108	108	58	108	85	51	108	64	45
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	80	108	108	59	108	81	50	108	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	59	113*	113*	51	113*	61	45
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	77	113*	113*	61	113*	113*	52	113*	60	44	113*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	62	103*	103*	62	103*	70	54
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	62	103*	65	53	103*	56	46	103*	49	41	103*	43	36	65	38	32
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	66	100*	100*	58
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	64	100*	90*	56	100*	61	49	60	54	43	54	48	38			
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	102	108	108	62	108	95	53	108	65	46	108	57	40	74	50	35	61	44	31
			Exposed	108	108	108	108	108	108	108	108	84	108	108	63	108	108	57	108	91	52	108	71	48	108	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	65	113*	113*	55	113*	63	47	119	55	41	67	48	36	58	42	31	51	37	42
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	62	113*	113*	56	113*	113*	51	113*	62	46	113*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	71	103*	103*	57	103*	59	49	103*	52	43	103*	46	38	80	41	34
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	61	103*	103*	56	103*	62	51	103*	52	43	103*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	81	100*	100*	59	100*	65	51	64	57	45	57	51	40
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	75	100*	100*	61	100*	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	101	112	112	70	112	112	61	112	87	52	112	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	112	112	99	112	112	65	112	112	58	112	93	53	112	71	48	112	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	65	113	113	59	113	113	54	113	61	46	113	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	113	113	64	113	113	57	113	113	52	113	63	47	113	57	42	113	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	65	108*	76	55	108*	57	47	108*	49	41	108*	43	36	65	38	32	57	34	42
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	62	108*	108*	56	108*	62	51	108*	56	47	108*	51	43	108*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	69	105*	99*	57	105*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	78	105*	105*	61	105*	90	56	105*	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34	

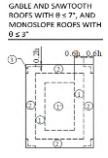
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

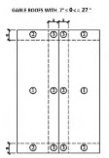
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

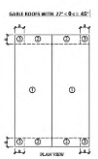
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

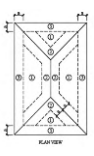












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

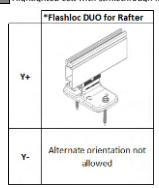
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	58	99	85	51	99	64	45
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	80	99	99	59	99	81	50	99	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	54	40
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	77	105*	105*	61	105*	105*	52	105*	60	44	105*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	62	93*	70	54	93*	58	48
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	62	93*	65	53	93*	56	46	93*	49	41	93*	43	36	65	38	32
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	66	88*	88*	58
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	56	88*	88*	64	88*	88*	61	88*	88*	56	88*	61	49	60	54	43	54	48	38
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	62	99	95	53	99	65	46	99	57	40	74	50	35	61	44	31
			Exposed	99	99	99	99	99	99	99	99	84	99	99	63	99	99	57	99	91	52	99	71	48	99	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	65	105*	105*	55	105*	63	47	105*	55	41	67	48	36	58	42	31	51	37	42
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	62	105*	105*	56	105*	105*	51	105*	62	46	105*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	71	93*	93*	57	93*	59	49	93*	52	43	93*	46	38	80*	41	34
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	61	93*	93*	56	93*	62	51	93*	52	43	93*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	82*	88*	88*	59	88*	65	51	64	57	45	57	51	40
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	77*	88*	88*	61	88*	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	101	104	104	70	104	104	61	104	87	52	104	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	104	104	99	104	104	65	104	104	58	104	93	53	104	71	48	104	62	44	104	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	59	110*	110*	54	110*	61	46	110*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	110*	110*	64	110*	110*	57	110*	110*	52	110*	63	47	110*	57	42	110*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	65	100*	76	55	100*	57	47	100*	49	41	100*	43	36	65	38	32	57	34	42
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	62	100*	100*	56	100*	62	51	100*	56	47	100*	51	43	100*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	69	96*	96*	69	96*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	78	96*	96*	61	96*	90*	56	96*	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
70	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	85	51	92	64	45
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	59	92	92	81	50	92	61	43	92	54	38	65	47	34	57	42	30
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	59	97*	97*	51	97*	61	45
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	77	97*	97*	61	97*	97*	52	97*	97*	60	44	97*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	62	81*	70*	54	81*	58	48
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	62	81*	81*	65	81*	56	46	81*	49	41	81*	43	36	65	38	32
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	67*	76*	76*	58
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	64	76*	76*	56	76*	61	49	60	54	43	54	48	38
	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	62	92	92	53	92	65	46	92	57	40	74	50	35	61	44	31
			Exposed	92	92	92	92	92	92	92	92	84	92	92	63	92	92	57	92	91	52	92	71	48	92	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	65	97*	97*	55	97*	97*	55	97*	63	47	97*	55	41	67	48	36	58	42	31
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	62	97*	97*	56	97*	97*	51	97*	62	46	97*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	71*	81*	81*	71*	81*	59	49	81*	52	43	81*	46	38	80*	41	34
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	61	81*	81*	56	81*	62	51	81*	52	43	81*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	58
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	75*	76*	76*	61	76*	67*	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	70	97	97	61	97	87	52	97	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	97	97	97	97	97	65	97	97	58	97	93	53	97	71	48	97	62	44	97	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	65	102*	102*	59	102*	102*	54	102*	61	46	102*	53	39	62	46	34	55	40	30	48	35	35
			Exposed	102*	102*	64	102*	102*	57	102*	102*	52	102*	63	47	102*	57	42	102*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	25	42	31	23
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	65	89*	76*	55	89*	57	47	89*	49	41	89*	43	36	65	38	32	57	34	42
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	62	89*	89*	56	89*	62	51	89*	56	47	89*	51	43	89*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	69	84*	84*	57	84*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	78*	84*	84*	61	84*	84*	56	84*	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	69	87	87	58	87	85	51	87	64	45
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	80	87	87	59	87	81	50	87	61	43	87	54	38	65	47	34	57	42	30
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	59	86*	86*	51	86*	61	45	86*	54	40
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	77*	86*	86*	61	86*	86*	52	86*	60	44	86*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	62*	71*	70*	54	71*	58	48
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	62*	71*	65*	53	71*	56	46	71*	49	41	71*	43	36	65*	38	32
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	68*	68*	58*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	56	68*	61*	49	60*	54	43	54	48	38
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	62	87	87	53	87	65	46	87	57	40	74	50	35	61	44	31
			Exposed	87	87	87	87	87	87	87	87	84	87	87	63	87	87	57	87	87	52	87	71	48	87	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	55	86*	86*	51	86*	61	42
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	62	86*	86*	56	86*	86*	51	86*	62	46	86*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	52	71*	71*	45	71*	46	38
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	61*	71*	71*	56	71*	62*	51	71*	52	43	71*	45	37	68*	39	32	58	34	42	51	30	38	45	40	33	45	40	33
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	59*	68*	68*	45	57	51	40
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	61*	68*	66*	52	63*	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	70	91	91	61	91	87	52	91	62	44	91	54	38	65	47	34	57	42	30	51	37	40
			Exposed	91	91	91	91	91	65	91	91	58	91	91	53	91	71	48	91	62	44	91	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	65	95*	95*	59	95*	95*	54	95*	61	46	95*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	95*	95*	64	95*	95*	57	95*	95*	52	95*	63	47	95*	57	42	95*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	65	78*	76*	55	78*	57	47	78*	49	41	78*	43	36	65	38	32	57	34	42
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	62	78*	78*	56	78*	62	51	78*	56	47	78*	51	43	78*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*	74*	74*	57	74*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	61	74*	74*	56	74*	65*	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34

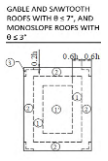
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

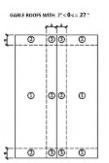
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

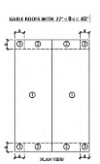
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

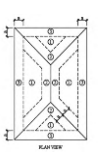












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

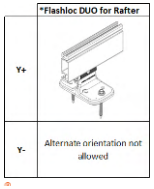
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	59	82	81	50	82	61	43	82	54	38	65	47	34	57	42	30
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	59	77*	77*	51	77*	61	45	77*	54	40			
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	61	77*	77*	52	77*	60	44	77*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	64*	54	64*	58*	48			
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	64*	53	64*	56*	46	64*	49	41	64*	43	36	64*	38	32
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	58*		
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	56*	61*	61*	49	60*	54*	43	54*	48	38
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	62	82	82	53	82	65	46	82	57	40	74	50	35	61	44	31
			Exposed	82	82	82	82	82	82	82	82	82	82	82	63	82	82	57	82	82	52	82	71	48	82	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	65	77*	77*	55	77*	63	47	77*	55	41	67*	48	36	58	42	31	51	37	42
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	62	77*	77*	56	77*	77*	51	77*	62	46	77*	57	42	71*	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	57*	64*	59*	49	64*	52	43	64*	46	38	64*	41	34
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	56*	64*	62*	51	64*	52	43	64*	45	37	64*	39	32	58*	34	42	51	30	38	45	40	33
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	59*	61*	61*	52*	61*	57*	45	57*	51	40			
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	52*	61*	56*	45	54*	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	70	86	86	61	86	86	52	86	62	44	86	54	38	65	47	34	57	42	30	51	37	40
			Exposed	86	86	86	86	86	65	86	86	58	86	86	53	86	71	48	86	62	44	86	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	65	85*	85*	59	85*	85*	54	85*	61	46	85*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	85*	85*	64	85*	85*	57	85*	85*	52	85*	63	47	85*	57	42	85*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	70*	55	70*	57	47	70*	49	41	70*	43	36	65*	38	32	57	34	42
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	56	70*	62*	51	70*	56	47	70*	51	43	70*	44	36	64*	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	57	67*	67*	47	67*	62*	49	60*	54	43	53	48	38	47	42	34
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	67*	56	67*	64*	51	61*	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	69	78	78	58	78	78	51	78	64	45
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	59	78	78	50	78	61	43	78	54	38	65	47	34	57	42	30
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	59	70*	70*	51	70*	61*	45	70*	54	40
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	52	70*	60*	44	70*	52	38	62*	45	34	55	40	30	48	35	40
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	48			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	53*	58*	56*	46	58*	58*	49	41	58*	43	36	58*	38	32
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	65	82*	82*	58
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	62	78	78	53	78	65	46	78	57	40	74	50	35	61	44	31
			Exposed	78	78	78	78	78	78	78	78	78	78	78	63	78	78	57	78	78	52	78	71	48	78	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	70*	55	70*	63*	47	70*	55	41	67*	48	36	58	42	31	51	37	42
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	56	70*	70*	51	70*	62*	46	70*	57	42	70*	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	58*	58*	49	58*	52*	43	58*	46	38	58*	41	34
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	51*	58*	52*	43	58*	45	37	58*	39	32	58*	34	42	51*	30	38	45	40	33			
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	61
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	78*	82*	82*	59	82*	64	51	63	57	45	56	51	40
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	70	82	82	61	82	82	52	82	62	44	82	54	38	65	47	34	57	42	30	51	37	40
			Exposed	82	82	82	82	82	65	82	82	58	82	82	53	82	71	48	82	62	44	82	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	65	77*	77*	59	77*	77*	54	77*	61	46	77*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	77*	77*	64	77*	77*	57	77*	77*	52	77*	63	47	77*	57	42	77*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	55*	64*	57*	47	64*	49	41	64*	43	36	64*	38	32	57*	34	42
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	64*	56*	64*	62*	51	64*	56*	47	64*	51	43	64*	44	36	64*	37	31	55*	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	57*	61*	61*	49	60*	54*	43	53*	48	38	47	42	34
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	56*	61*	61*	51	61*	55*	43	52*	47	37	45	41	32	40	36	43	35	31	38	31	42	34			

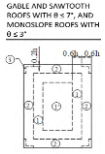
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

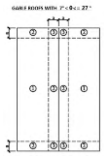
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

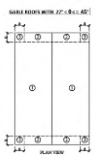
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

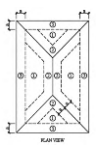












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

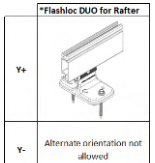
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	111	120	120	92	120	120	78	120	112	67	120	84	50	112	66	40	87	53	33	70	43	29	58	36	25	48	32	22
			Exposed	120	120	91	120	120	74	120	104	62	120	87	52	120	75	45	110	64	39	94	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	120	120	120	120	120	120	120	120	120	105	120	120	84	120	120	69	120	108	58	120	74	42	110	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	120	120	83	120	120	65	120	98	53	120	78	44	120	64	37	107	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	110	121	121	88	121	91	61	121	65	45	121	49	35	94	38	31	75	33	27	61	29	24
			Exposed	121	121	121	121	121	103	121	121	79	121	96	64	121	77	53	121	63	44	121	53	38	96	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	82	121	89	61	102	69	47	74	55	38	57	44	32	45	37	29
			Exposed	121	121	121	121	121	121	121	121	107	121	121	86	121	104	71	121	87	60	114	74	51	76	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	120	120	101	120	120	82	120	114	68	120	96	57	120	82	49	120	70	42	103	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	120	81	49	116	68	41	96	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	120	120	94	120	120	73	120	112	59	120	88	49	120	72	41	120	60	35	98	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	120	71	41	116	57	34	89	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	18	14	
		20-27	Interior	121	121	121	121	121	119	121	121	90	121	111	72	121	87	59	121	71	49	121	59	41	107	43	33	80	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	121	86	58	121	67	47	121	54	38	112	45	33	92	38	30	78	34	28	67	31	25	50	26	21	39	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	96	121	116	79	121	97	66	121	82	56	86	61	42	61	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	121	115	78	121	92	63	118	76	52	91	63	44	73	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	120	120	73	120	100	60	120	84	50	120	71	43	103	61	37	88	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	102	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	120	120	64	120	93	51	120	74	42	120	60	35	98	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	97	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	121	121	99	121	119	76	121	91	61	121	72	50	121	59	41	121	49	35	104	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	24	28	25	21
			Exposed	121	59	41	118	47	34	95	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	121	121	121	121	121	102	121	121	82	121	98	67	121	82	56	103	69	48	83	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	121	81	56	97	66	46	75	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	92	111	111	78	111	111	67	111	84	50	111	66	40	87	53	33	70	43	29	58	36	25	48	32	22
			Exposed	111	111	91	111	111	74	111	104	62	111	87	52	111	75	45	110	64	39	94	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	112	112	112	112	112	112	112	112	112	105	112	112	84	112	112	69	112	108	58	112	74	42	110	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	112	112	83	112	112	65	112	98	53	112	78	44	112	64	37	107	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	110	117	117	88	117	91	61	117	65	45	117	49	35	94	38	31	75	33	27	61	29	24
			Exposed	117	117	117	117	117	103	117	117	79	117	96	64	117	77	53	117	63	44	117	53	38	96	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	117	120	120	82	120	89	61	102	69	47	74	55	38	57	44	32	45	37	29
			Exposed	120	120	120	120	120	120	120	120	107	120	120	86	120	104	71	120	87	60	114	74	51	76	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	111	111	101	111	111	82	111	111	68	111	96	57	111	82	49	111	70	42	103	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	111	81	49	111	68	41	96	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	112	112	94	112	112	73	112	112	59	112	88	49	112	72	41	112	60	35	98	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	112	71	41	112	57	34	89	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	117	117	117	117	117	117	117	117	90	117	111	72	117	87	59	117	71	49	117	59	41	107	43	33	80	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	117	86	58	117	67	47	117	54	38	112	45	33	92	38	30	78	34	28	67	31	25	50	26	21	39	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	120	120	120	120	120	120	120	120	120	120	120	96	120	116	79	120	97	66	120	82	56	86	61	42	61	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	120	115	78	120	92	63	118	76	52	91	63	44	73	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	111	111	73	111	100	60	111	84	50	111	71	43	103	61	37	88	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	102	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	112	112	64	112	93	51	112	74	42	112	60	35	98	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	97	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	118	118	99	118	118	76	118	91	61	118	72	50	118	59	41	118	49	35	104	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	24	28	25	21
			Exposed	118	59	41	118	47	34	95	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	121	121	121	121	121	102	121	121	82	121	98	67	121	82	56	103	69	48	83	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	121	81	56	97	66	46	75	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	78	96	96	67	96	84	50	96	66	40	87	53	33	70	43	29	58	36	25	48	32	22
			Exposed	96	96	91	96	96	74	96	96	62	96	87	52	96	75	45	96	64	39	94	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	84	96	96	69	96	96	58	96	74	42	96	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	96	96	83	96	96	65	96	96	53	96	78	44	96	64	37	96	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	88	108*	91	61	108*	65	45	108*	49	35	94	38	31	75	33	27	61	29	24
			Exposed	108*	108*	108*	108*	108*	103*	108*	108*	79	108*	96	64	108*	77	53	108*	63	44	108*	53	38	96	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	82	103*	89	61	102*	69	47	74	55	38	57	44	32	45	37	29
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	86	103*	103*	71	103*	87	60	103*	74	51	76	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	96	96	96	96	96	82	96	96	68	96	96	57	96	82	49	96	70	42	96	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	96	81	49	96	68	41	96	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	96	96	94	96	96	73	96	96	59	96	88	49	96	72	41	96	60	35	96	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	96	71	41	96	57	34	89	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	90	108*	108*	72	108*	87	59	108*	71	49	108*	59	41	107*	43	33	80	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	108*	86	58	108*	67	47	108*	54	38	108*	45	33	92	38	30	78	34	28	67	31	25	50	26	21	39	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96*	103*	103*	79	103*	97*	66	103*	82	56	86	61	42	61	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	103*	103*	78	103*	93*	63	103*	76	52	93*	63	44	73	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	96	96	73	96	96	60	96	84	50	96	71	43	96	61	37	88	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	96	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	96	96	64	96	93	51	96	74	42	96	60	35	96	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	96	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	111*	111*	99	111*	111*	76	111*	91	61	111*	72	50	111*	59	41	111*	49	35	104	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	24	28	25	21
			Exposed	111*	59	41	111*	47	34	95	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	107*	107*	107*	107*	107*	102*	107*	107*	82	107*	100*	67	107*	82	56	103*	69	48	83	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	107*	81	56	97	66	46	75	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17

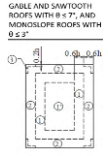
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

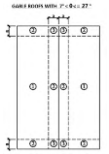
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

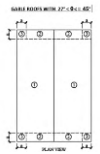
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

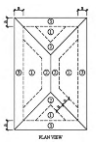












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

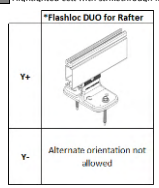
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	78	86	86	67	86	84	50	86	66	40	86	53	33	70	43	29	58	36	25	48	32	22			
			Exposed	86	86	86	86	86	74	86	86	62	86	86	52	86	75	45	86	64	39	86	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	84	94*	94*	84	94*	94*	69	94*	94*	58	94*	74	42	94*	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	94*	94*	83	94*	94*	65	94*	94*	53	94*	78	44	94*	64	37	94*	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	61	86*	65	45	86*	49	35	86*	38	31	75*	33	27	61	29	24
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	79*	86*	86*	64	86*	77*	53	86*	63	44	86*	53	38	86*	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	69*	47	74*	55	38	57	44	32	45	37	29			
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	71*	80*	80*	60	80*	74*	51	76*	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	86	86	86	86	86	82	86	86	68	86	86	57	86	82	49	86	70	42	86	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	86	81	49	86	68	41	86	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	94*	94*	94*	94*	94*	73	94*	94*	59	94*	86	49	94*	72	41	94*	60	35	94*	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	94*	71	41	94*	57	34	86	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	38	27	20	32	24	18	29	21	~~17~~	25	18	~~14~~
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	72	86*	86*	59	86*	71	49	86*	59	41	86*	43	33	80*	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	86*	86*	58	86*	67	47	86*	54	38	86*	45	33	86*	38	30	78*	34	28	67	31	25	50	26	21	39	22	18	33	19	~~24~~	29	~~25~~	~~21~~	25	~~22~~	~~19~~	22	~~20~~	~~16~~
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	79*	80*	80*	66	80*	80*	56	80*	61	42	61	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	80*	80*	78*	80*	80*	63	80*	76*	52	80*	63	44	73*	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	~~25~~	21	19	~~22~~	18	~~25~~	~~20~~
	D	0-7	Interior	86	86	73	86	86	60	86	84	50	86	71	43	86	61	37	86	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	~~25~~	28	21	~~22~~	25	18	20
			Exposed	86	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	~~25~~	28	20	~~22~~	24	17	~~19~~	21	~~23~~	~~16~~	18	~~20~~	~~14~~	25	~~18~~	~~13~~
		7-20	Interior	86	86	64	86	86	51	86	74	42	86	60	35	86	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	~~25~~	27	20	~~22~~	24	17	20	21	~~23~~	~~17~~
			Exposed	86	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	~~22~~	23	17	~~19~~	20	~~22~~	~~17~~	18	~~20~~	~~15~~	~~24~~	~~17~~	~~13~~	~~21~~	~~15~~	~~11~~
		20-27	Interior	94*	94*	94*	94*	94*	76	94*	91*	61	94*	72	50	94*	59	41	94*	49	35	94*	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	~~24~~	28	~~25~~	~~21~~
			Exposed	94*	59	41	94*	47	34	94*	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	~~23~~	27	~~24~~	~~20~~	24	~~21~~	~~18~~	21	~~19~~	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	82*	86*	86*	67	86*	82*	56	86*	69	48	83*	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	~~25~~
			Exposed	86*	81*	56	86*	66	46	76*	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	~~24~~	20	18	~~21~~	17	~~23~~	~~19~~	~~23~~	~~21~~	~~17~~
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	67	83	83	50	83	66	40	83	53	33	70	43	29	58	36	25	48	32	22			
			Exposed	83	83	83	83	83	74	83	83	63	83	83	52	83	75	45	83	64	39	83	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	~~25~~	28	21	22
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	69	82*	82*	58	82*	74*	42	82*	55	34	78*	42	29	59	34	25	47	30	22	38	27	20
			Exposed	82*	82*	82*	82*	82*	65	82*	82*	53	82*	78*	44	82*	64	37	82*	54	33	82*	46	30	61	35	26	45	30	22	35	26	19	31	22	~~25~~	27	20	~~22~~	24	18	20
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	65*	45	67*	49	35	67*	38	31	67*	33	27	61*	29	24
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	64*	67*	67*	53	67*	63*	44	67*	53	38	67*	39	31	67*	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	47	63*	55*	38	57*	44	32	45	37	29
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	51	63*	56*	38	55*	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	83	83	83	83	83	82	83	83	68	83	83	57	83	82	49	83	70	42	83	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	83	81	49	83	68	41	83	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	~~23~~	25	18	~~20~~	22	~~24~~	~~17~~	20	~~22~~	~~15~~
		7-20	Interior	82*	82*	82*	82*	82*	73*	82*	82*	59	82*	82*	49	82*	72*	41	82*	60	35	82*	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	~~23~~	25	19	21
			Exposed	82*	71*	41	82*	57	34	82*	47	31	71*	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	~~23~~	24	18	~~20~~	21	~~23~~	~~17~~	19	~~21~~	~~15~~	~~25~~	~~18~~	~~14~~
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	59*	67*	67*	49	67*	59*	41	67*	43	33	67*	34	28	62*	29	24	50	26	21	40	23	19	34	20	~~25~~
			Exposed	67*	67*	58*	67*	67*	47	67*	54	38	67*	45	33	67*	38	30	67*	34	28	67*	31	25	50	26	21	39	22	18	33	19	~~24~~	29	~~25~~	~~21~~	25	~~22~~	~~19~~	22	~~20~~	~~16~~
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	56*	63*	56*	38	63*	43	32	42	35	28	34	30	24	30	27	21	27	24	19
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	54*	37	60*	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	~~25~~	21	19	~~22~~	18	~~25~~	~~20~~
	D	0-7	Interior	85	85	73	85	85	60	85	84	50	85	71	43	85	61	37	85	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	~~25~~	28	21	~~22~~	25	18	20
			Exposed	85	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	~~25~~	28	20	~~22~~	24	17	~~19~~	21	~~23~~	~~16~~	18	~~20~~	~~14~~	~~25~~	~~18~~	~~13~~
		7-20	Interior	89*	89*	64	89*	89*	51	89*	74	42	89*	60	35	89*	50	32	79*	43	29	66	37	27	47	31	23	36	26	19	31	23	~~25~~	27	20	~~22~~	24	17	~~20~~	21	~~23~~	~~17~~
			Exposed	89*	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	~~22~~	23	17	~~19~~	20	~~22~~	~~17~~	18	~~20~~	~~15~~	~~24~~	~~17~~	~~13~~	~~21~~	~~15~~	~~11~~
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	61	73*	72*	50	73*	59	41	73*	49	35	73*	42	32	73*	33	27	58	28	23	46	24	20	37	21	18	32	19	~~24~~	28	~~25~~	~~21~~
			Exposed	73*	59	41	73*	47	34	73*	39	31	73*	34	28	67*	31	25	57	28	23	49	26	21	38	22	18	32	18	~~23~~	27	~~24~~	~~20~~	24	~~21~~	~~18~~	21	~~19~~	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	69*	56	69*	69*	48	69*	60*	41	59*	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	69*	69*	56	69*	66*	46	69*	55	38	61*	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	~~24~~	20	18	~~21~~	17	~~23~~	~~19~~	~~23~~	~~21~~	~~17~~
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	67	77	77	50	77	66	40	77	53	33	70	43	29	58	36	25	48	32	22			
			Exposed	77	77	77	77	77	74	77	77	62	77	77	52	77	75	45	77	64	39	77	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	~~25~~	28	21	22
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	58*	67*	67*	42	67*	55	34	67*	42	29	59*	34	25	47	30	22	38	27	20
			Exposed	67*	67*	67*	67*	67*	65*	67*	67*	53	67*	67*	44	67*	64*	37	67*	54	33	67*	46	30	61*	35	26	45	30	22	35	26	19	31	22	~~25~~	27	20	~~22~~	24	18	20
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	45	55*	49*	35	55*	38	31	55*	33	27	55*	29	24			
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	44	55*	53*	38	55*	39	31	55*	32	27	55*	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	38	52*	43	32	42	35	28	34	30	24	30	27	21
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	38	52*	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	77	77	77	77	77	77	77	77	68	77	77	57	77	77	49	77	70	42	77	61	37	77	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	77	77	49	77	68	41	77	57	35	77	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	~~23~~	25	18	~~20~~	22	~~24~~	~~17~~	20	~~22~~	~~15~~
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	59*	67*	67*	49	67*	67*	41	67*	60*	35	67*	50	32	67*	37	27	50	31	23	38	27	20	32	24	18	29	21	~~23~~	25	19	21
			Exposed	67*	67*	41	67*	57*	34	67*	47	31	67*	39	28	58*	34	25	49	31	23	42	28	21	33	24	18	28	20	~~23~~	24	18	~~20~~	21	~~23~~	~~17~~	19	~~21~~	~~15~~	~~25~~	~~18~~	~~14~~
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	49*	55*	55*	41	55*	43	33	55*	34	28	55*	29	24	50*	26	21	40	23	19	34	20	25
			Exposed	55*	55*	55*	55*	55*	47	55*	54*	38	55*	45	33	55*	38	30	55*	34	28	55*	31	25	50*	26	21	39	22	18	33	19	~~24~~	29	~~25~~	~~21~~	25	~~22~~	~~19~~	22	~~20~~	~~16~~
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42	52*	47*	34	47*	38	29	36	32	25	32	28	22	28	25	20
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	52*	37	52*	47*	33	50*	40	30	37	32	26	31	28	22	27	24	19	24	21	~~25~~	21	19	~~22~~	18	~~25~~	~~20~~
	D	0-7	Interior	80	80	73	80	80	60	80	80	50	80	71	43	80	61	37	80	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	~~25~~	28	21	~~22~~	25	18	20
			Exposed	80	61	37	80	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	~~25~~	28	20	~~22~~	24	17	~~19~~	21	~~23~~	~~16~~	18	~~20~~	~~14~~	~~25~~	~~18~~	~~13~~
		7-20	Interior	73*	73*	64*	73*	73*	51	73*	73*	42	73*	60	35	73*	50	32	73*	43	29	66*	37	27	47	31	23	36	26	19	31	23	~~25~~	27	20	~~22~~	24	17	~~20~~	21	~~23~~	~~17~~
			Exposed	73*	50	32	73*	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	~~22~~	23	17	~~19~~	20	~~22~~	~~17~~	18	~~20~~	~~15~~	~~24~~	~~17~~	~~13~~	~~21~~	~~15~~	~~11~~
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	50	60*	59*	41	60*	49	35	60*	42	32	60*	33	27	58*	28	23	46	24	20	37	21	18	32	19	~~24~~	28	~~25~~	~~21~~
			Exposed	60*	59*	41	60*	47	34	60*	39	31	60*	34	28	60*	31	25	57*	28	23	49	26	21	38	22	18	32	18	~~23~~	27	~~24~~	~~20~~	24	~~21~~	~~18~~	21	~~19~~	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	48	57*	57*	41	57*	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	57*	57*	56*	57*	57*	46	57*	55*	38	57*	47	34	50*	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	~~24~~	20	18	~~21~~	17	~~23~~	~~19~~	~~23~~	~~21~~	~~17~~

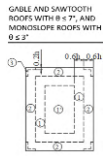
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

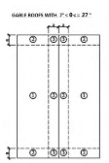
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

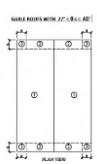
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

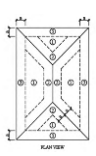












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

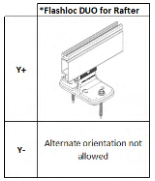
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	50	68	66	40	68	53	33	68	43	29	58	36	25	48	32	22
			Exposed	68	68	68	68	68	68	68	68	62	68	68	52	68	68	45	68	64	39	68	56	34	68	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	42	56*	55*	34	56*	42	29	56*	34	25	47	30	22	38	27	20
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	56*	44	56*	56*	37	56*	54*	33	56*	46	30	56*	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	45*	47*	47*	35	47*	38	31	47*	33	27	47*	29	24
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	38	47*	39	31	47*	32	27	47*	28	23	45*	24	20	37	21	18	32	19	24
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*	44*	44*	32	44*	37	29
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	39*	44*	43*	32	42*	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	57	68	68	49	68	68	42	68	61	37	68	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	68	68	49	68	68	41	68	57	35	68	49	31	68	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	49*	56*	56*	41	56*	56*	35	56*	50*	32	56*	37	27	50*	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	56*	56*	41	56*	56*	34	56*	47	31	56*	39	28	56*	34	25	49*	31	23	42	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	43*	33	47*	34	28	47*	29	24	47*	26	21	40*	23	19	34	20	25
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	38	47*	45*	33	47*	38	30	47*	34	28	47*	31	25	47*	32	24	39	22	18	33	19	24	29	25	21	39	22	18	33	19	~~16~~
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	44*	44*	34	44*	38*	29	36	32	25	32	28	22	28	25	20
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37	44*	44*	33	44*	40*	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	74	74	73	74	74	60	74	74	50	74	71	43	74	61	37	74	53	33	74	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	74	61	37	74	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	~~16~~	18	20	~~14~~	25	18	~~13~~
		7-20	Interior	62*	62*	62*	62*	62*	51	62*	62*	42	62*	60*	35	62*	50	32	62*	43	29	62*	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	~~17~~
			Exposed	62*	50	32	62*	41	28	60*	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	~~17~~	18	20	~~15~~	24	~~17~~	~~13~~	21	~~15~~	~~11~~
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	41	51*	49*	35	51*	42	32	51*	33	27	51*	28	23	46*	24	20	37	21	18	32	19	24	28	25	21
			Exposed	51*	51*	41	51*	47*	34	51*	39	31	51*	34	28	51*	31	25	51*	28	23	49*	26	21	38	22	18	32	18	23	27	24	20	24	21	~~18~~	21	19	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41	48*	45*	33	43*	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	48*	48*	48*	48*	48*	46*	48*	48*	38	48*	47*	34	48*	40	30	42*	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	~~19~~	23	~~21~~	~~17~~
70	B	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	57	59	59	49	59	59	42	59	59	37	59	48	31	59	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	59	59	49	59	59	41	59	57	35	59	49	31	59	43	28	59	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	37	49*	49*	33	49*	46*	30	49*	35	26	45*	30	22	35	26	19	31	22	25	27	20	22	24	18	20
			Exposed	49*	49*	41	49*	49*	34	49*	47*	31	49*	39	28	49*	34	25	49*	31	23	42*	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	38*	31	40*	33	27
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	39*	31	40*	32	27	40*	28	23	40*	24	20	37*	21	18	32	19	24
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	37*	29
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	28	34*	30	24	30	27	21	26	24	19	27	24	19
	C	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	57	59	59	49	59	59	42	59	59	37	59	48	31	59	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	59	59	49	59	59	41	59	57	35	59	49	31	59	43	28	59	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	37	49*	49*	33	49*	46*	30	49*	35	26	45*	30	22	35	26	19	31	22	25	27	20	22	24	18	20
			Exposed	49*	49*	41	49*	49*	34	49*	47*	31	49*	39	28	49*	34	25	49*	31	23	42*	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	38*	31	40*	33	27
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	39*	31	40*	32	27	40*	28	23	40*	24	20	37*	21	18	32	19	24
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	37*	29
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	28	34*	30	24	30	27	21	26	24	19	27	24	19
	D	0-7	Interior	65	65	65	65	65	65	65	65	50	65	65	43	65	61	37	65	53	33	65	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	65	61	37	65	51	32	65	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	~~16~~	18	20	~~14~~	25	18	~~13~~
		7-20	Interior	54*	54*	54*	54*	54*	51*	54*	54*	42	54*	54*	35	54*	50*	32	54*	43	29	54*	37	27	47*	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	~~17~~
			Exposed	54*	50*	32	54*	41	28	54*	35	26	50*	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	~~17~~	18	20	~~15~~	24	~~17~~	~~13~~	21	~~15~~	~~11~~
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	45*	35	45*	42*	32	45*	33	27	45*	28	23	45*	24	20	37	21	18	32	19	24	28	25	21
			Exposed	45*	45*	41	45*	45*	34	45*	39	31	45*	34	28	45*	31	25	45*	28	23	45*	26	21	38	22	18	32	18	23	27	24	20	24	21	~~18~~	21	19	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*	42*	42*	33	42*	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	34	42*	40*	30	42*	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	~~19~~	23	~~21~~	~~17~~
80	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	40	52	52	33	52	43	29	52	36	25	48	32	22			
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	39	52	52	34	52	44	29	52	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	34	43*	42*	29	43*	34	25	43*	30	22	38*	27	20
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	43*	33	43*	43*	30	43*	35	26	43*	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	36*	36*	33*	27	36*	29	24
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	31*	36*	32*	27	36*	28	23	36*	24	20	36*	21	18	32*	19	24
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	34*	29
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	34*	28	34*	31*	24	30*	27	21	27	24	19
	C	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	42	52	52	37	52	48	31	52	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	52	52	49	52	52	41	52	52	35	52	49	31	52	43	28	52	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	35	43*	43*	32	43*	37*	27	43*	31	23	38*	27	20	32	24	18	29	21	23	25	19	21
			Exposed	43*	43*	41*	43*	43*	34	43*	43*	31	43*	39*	28	43*	34	25	43*	31	23	42*	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	30	36*	36*	28	36*	31*	25	36*	26	21	36*	22	18	33*	19	24	29	25	21	25	22	19	22	20	~~16~~
			Exposed	36*	36*	36*	36*	36*	34*	36*	36*	34*	36*	36*	34*	36*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	29	34*	32*	25	32*	28	22	28	25	20
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	33*	34*	34*	30*	34*	33*	26	31*	28	22	27	24	19	24	21	25	21	19	22	18	25	20
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	30*	34*	33*	26	31*	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	57	57	57	57	57	57	57	57	50	57	57	43	57	57	37	57	53	33	57	47	30	57	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	57	57	37	57	51	32	57	44	29	57	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	~~16~~	18	20	~~14~~	25	18	~~13~~
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	35	48*	48*	32	48*	43*	29	48*	37	27	47*	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	~~17~~
			Exposed	48*	48*	32	48*	41*	28	48*	35	26	48*	31	23	41*	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	~~17~~	18	20	~~15~~	24	~~17~~	~~13~~	21	~~15~~	~~11~~
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	32	39*	33	27	39*	28	23	39*	24	20	37*	21	18	32	19	24	28	25	21
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	31	39*	34*	28	39*	31	25	39*	28	23	39*	26	21	38*	22	18	32	18	23	27	24	20	24	21	~~18~~	21	19	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	35*	28	34*	31	24	30	27	21	26	24	19	23	21	25
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	34*	37*	37*	30	37*	35*	28	36*	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	~~19~~	23	~~21~~	~~17~~

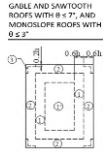
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

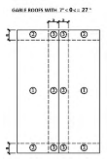
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

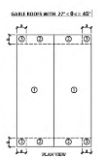
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

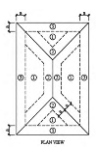












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

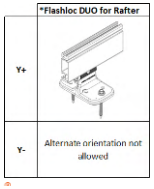
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	43	29	46	36	25	46	32	22
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	34	46	44	29	46	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	38*	34*	25	38*	30	22	38*	27	20
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	33	38*	38*	30	38*	35*	26	38*	30	22	35*	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	41	48*	44*	36
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	40	48*	42*	35	48*	37	30	48*	32	27	48*	29	24
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	36	45*	41*	32	40*	36	29
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	37	46	46	31	46	38	26	46	32	23	40	28	20	34	25	17	30	22	23
			Exposed	46	46	46	46	46	41	46	46	35	46	46	31	46	43	28	46	37	26	46	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	32	38*	37*	27	38*	31	23	38*	27	20	32	24	18	29	21	23	25	19	21
			Exposed	38*	38*	38*	38*	38*	34*	38*	38*	31	38*	38*	28	38*	34*	25	38*	31	23	38*	28	21	33	24	18	28	20	23	24	18	17	21	23	17	19	21	15	25	18	14
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	44*	37	48*	39	32	48*	34	28	48*	30	25
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	42	48*	48*	38	48*	39	32	48*	34	28	48*	29	24	43*	25	21	38	22	19	34	20	16
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	39	46*	43*	34	42*	38	30
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	39	46*	42*	33	41*	36	29	36	32	25	31	28	22	28	25	20
	D	0-7	Interior	51	51	51	51	51	51	51	51	50	51	51	43	51	51	37	51	51	33	51	47	30	51	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	51	51	37	51	51	32	51	44	29	51	38	26	51	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	42*	32	42*	42*	29	42*	37*	27	42*	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	42*	42*	32	42*	41*	28	42*	35	26	42*	31	23	41*	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	33*	27	35*	28	23	35*	24	20	35*	21	18	32*	19	24	28	25	21
			Exposed	35*	35*	35*	35*	35*	34*	35*	35*	31*	35*	34*	28	35*	31*	25	35*	28	23	35*	26	21	35*	22	18	32*	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43	50*	47*	37	45*	41	32	40	36	28	36	32	25
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	42	50*	49*	38	46*	41	33	39	35	28	34	31	24	30	27	21	26	23	19	23	21	17
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	33	42	42	29	42	36	25	42	32	22
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	34	42	42	29	42	35	25	42	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	34*	35*	35*	29	35*	34*	25	35*	30*	22	35*	27	20
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	26	35*	26	19	31*	22	25	27	20	22	24	18	20
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	42*	35	43*	43*	37	30	43*	32	27	43*	29	24
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	29
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	31	42	38	26	42	32	23	40	28	20	34	25	17	30	22	23
			Exposed	42	42	42	42	42	41	42	42	35	42	42	31	42	42	28	42	37	26	42	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	35*	27	35*	31*	23	35*	27	20	32*	24	18	29	21	23	25	19	21
			Exposed	35*	35*	35*	35*	35*	34*	35*	35*	31*	35*	35*	28	35*	34*	25	35*	31*	23	35*	28	21	33*	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	37	43*	39*	32	43*	34	28	43*	30	25
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	38*	43*	39*	32	43*	34	28	43*	29	24	43*	25	21	38*	22	19	34	20	16
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	34	41*	38*	30			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	33	41*	37*	29	36*	32	25	31	28	22	28	25	20
	D	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	43	46	46	37	46	46	33	46	46	30	46	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	46	46	37	46	46	32	46	44	29	46	38	26	46	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	32	38*	38*	29	38*	37*	27	38*	31	23	36*	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	38*	38*	32	38*	38*	28	38*	35*	26	38*	31	23	38*	28	21	35*	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41	48*	43*	35	48*	37	31	48*	32	27	48*	28	24	43*	25	21
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	42*	48*	46*	38	48*	42*	35	48*	39	32	48*	33	27	48*	33	27	41	24	20	36	21	16	32	19	15	28	17	14
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	37	45*	41*	32	40*	36	28	35	32	25
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	41*	32	39	35	28	34	30	24	30	27	21	26	23	19	23	21	17

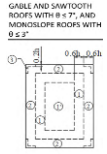
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

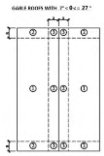
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

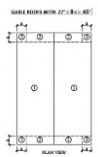
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

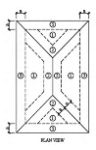












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

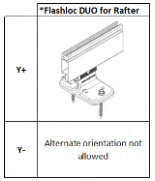
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	145	149	149	133	149	140	119	149	131	65	143	120	57	135	80	50	127	63	44
			Exposed	149	149	149	149	149	149	149	149	142	149	149	134	149	146	128	149	139	109	149	133	74	144	123	57	133	76	49	125	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	134	149	145	72	149	133	57	149	85	50	139	60	44	129	53	39
			Exposed	149	149	149	149	149	149	149	149	145	149	149	136	149	149	128	149	144	66	149	136	60	149	124	51	138	59	43	126	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	139	150	142	128	150	150	131	60	150	64	53	142	57	47
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	138	150	146	131	150	132	61	150	63	52	138	55	45	129	48	40	98	42	35	64	38	31
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	148	136	151	138	126	151	129	64	140	99	57
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	148	136	151	138	126	151	129	64	140	99	57
	C	0-7	Interior	149	149	149	149	149	149	149	149	146	149	149	138	149	149	131	149	143	125	149	137	92	148	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	149	149	131	149	141	124	149	134	77	149	128	62	143	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	132	149	149	126	149	141	63	149	128	53	142	62	46	130	54	40	64	47	35	56	41	31	50	37	41
			Exposed	149	149	132	149	147	86	149	137	61	149	129	55	149	78	50	141	61	45	134	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	143	150	150	135	150	136	65	150	81	55	142	58	48	133	51	42	125	45	37	73	40	33
			Exposed	150	150	150	150	150	141	150	147	132	150	138	72	150	130	60	150	71	55	146	60	50	133	51	42	123	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	143	151	143	131	151	132	71	141	109	57	130	63	50	62	56	44	55	50	39
			Exposed	151	151	151	151	151	149	151	151	140	151	144	132	151	137	125	151	131	66	145	125	60	131	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39
	D	0-7	Interior	149	149	149	149	149	140	149	149	132	149	144	126	149	137	91	149	131	65	147	126	60	135	82	50	126	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	149	137	90	149	129	64	144	123	57	137	87	52	131	67	47	125	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	149	149	149	149	149	143	149	149	134	149	149	126	149	141	63	149	133	58	149	127	53	140	60	45	128	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	149	141	63	149	131	56	149	124	50	142	62	46	134	56	41	127	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	144	150	150	135	150	143	128	150	135	64	150	65	54	140	56	46	130	48	40	97	42	35	63	37	31	56	33	41
			Exposed	150	150	135	150	140	126	150	132	61	150	76	55	146	60	50	139	55	46	132	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	143	151	148	136	151	141	130	65	138	86	55	127	60	48	59	53	42	52	47	37	46	41	33
			Exposed	151	151	143	151	146	134	151	138	127	151	131	69	145	125	60	137	81	55	130	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	138	139	139	131	139	139	125	139	137	92	139	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	139	139	131	139	139	124	139	134	77	139	128	62	139	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	134	140	140	72	140	133	57	140	85	50	139	60	44	129	53	39
			Exposed	140	140	140	140	140	140	140	140	140	140	140	136	140	140	128	140	140	66	140	136	60	140	124	51	138	59	43	126	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	142	128	146	131	60	146	64	53	142	57	47
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	138	146	146	131	146	132	61	146	63	52	138	55	45	129	48	40	98	42	35	64	38	31
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	148	136	150	138	126	150	129	64	140	99	57
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	139	150	138	127	150	128	63	137	79	54	126	60	48	59	53	42	52	47	37
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	138	139	139	131	139	139	125	139	137	92	139	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	139	139	131	139	139	124	139	134	77	139	128	62	139	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	132	140	140	126	140	140	63	140	128	53	140	62	46	130	54	40	64	47	35	56	41	31
			Exposed	140	140	132	140	140	86	140	137	61	140	129	55	140	78	50	140	61	45	134	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	135	146	136	65	146	81	55	142	58	48	133	51	42	125	45	37	73	40	33
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		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	143	150	143	131	150	132	71	141	109	57	130	63	50	62	56	44	55	50	39
			Exposed	150	150	150	150	150	149	150	150	140	150	144	132	150	137	125	150	131	66	145	125	60	131	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	138	139	139	131	139	139	125	139	137	92	139	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	139	139	131	139	139	124	139	134	77	139	128	62	139	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	132	140	140	126	140	140	63	140	128	53	140	62	46	130	54	40	64	47	35	56	41	31
			Exposed	140	140	132	140	140	86	140	137	61	140	129	55	140	78	50	140	61	45	134	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	135	146	136	65	146	81	55	142	58	48	133	51	42	125	45	37	73	40	33
			Exposed	146	146	146	146	146	141	146	146	132	146	138	72	146	130	60	146	71	55	146	60	50	133	51	42	123	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	143	150	143	131	150	132	71	141	109	57	130	63	50	62	56	44	55	50	39
			Exposed	150	150	150	150	150	149	150	150	140	150	144	132	150	137	125	150	131	66	145	125	60	131	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	119	126	126	65	126	120	57	126	80	50	126	63	44
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	109	126	126	74	126	123	57	126	76	49	125	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	72	127	127	57	127	85	50	127	60	44	127	53	39
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	66	127	127	60	127	124	51	127	59	43	126	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	128	135	131	60	135	64	53	135	57	47
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	131	135	132	61	135	63	52	135	55	45	129	48	40	98	42	35	64	38	31			
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	139	140	140	136	140	138	126	140	129	64	139	99	57
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	139	140	138	127	140	128	63	137	79	54	126	60	48	59	53	42	52	47	37
	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	92	126	126	61	126	89	52	126	63	45	101	55	39	70	49	35	59	43	46
			Exposed	126	126	126	126	126	124	126	126	77	126	126	62	126	116	56	126	86	51	126	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	57	127	85	50	127	60	44	127	53	39
			Exposed	127	127	127	127	127	86	127	127	61	127	127	55	127	78	50	127	61	45	127	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	128	135	131	60	135	64	53	135	57	47
			Exposed	135	135	135	135	135	135	135	135	132	135	135	72	135	130	60	135	71	55	135	60	50	133	51	42	123	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	138	126	140	129	64	139	99	57
			Exposed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	139	140	138	127	140	128	63	137	79	54	126	60	48	59	53	42	52	47	37
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	91	126	126	65	126	126	60	126	82	50	126	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	126	126	90	126	126	64	126	123	57	126	87	52	126	67	47	125	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	126	127	127	63	127	127	58	127	127	53	127	60	45	127	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	127	127	63	127	127	56	127	124	50	127	62	46	127	56	41	127	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	135	137	137	128	137	135	64	137	65	54	137	56	46	130	48	40	97	42	35	63	37	31	56	33	41
			Exposed	137	137	135	137	137	126	137	132	61	137	76	55	137	60	50	137	55	46	132	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	136	142	141	130	142	130	65	138	86	55	127	60	48	59	53	42	52	47	37	46	41	33
			Exposed	142	142	142	142	142	134	142	138	127	142	131	69	142	125	60	137	81	55	130	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33

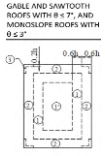
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

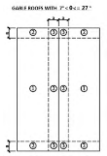
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

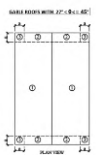
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

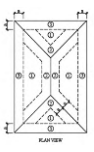












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

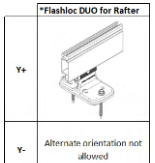
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	57	117	117	80	50	117	63	44
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	74	117	117	57	117	76	49	117	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	72	118	118	57	118	85	50	118	60	44	118	53	39
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	66	118	118	60	118	118	51	118	59	43	118	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	64	53	127	57	47
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	61	127	63	52	127	55	45	127	48	40	98	42	35	64	38	31
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	64	122	99	57
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	64	122	99	57
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	92	117	117	61	117	89	52	117	63	45	101	55	39	70	49	35	59	43	46
			Exposed	117	117	117	117	117	117	117	117	77	117	117	62	117	116	56	117	86	51	117	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	41
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	63	118	118	53	118	62	46	118	54	40	64	47	35	56	41	31	50	37	41
			Exposed	118	118	118	118	118	86	118	118	61	118	118	55	118	78	50	118	61	45	118	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	65	127	81	55	127	58	48	127	51	42	125	45	37	73	40	33
			Exposed	127	127	127	127	127	127	127	127	127	72	127	127	127	127	127	127	127	60	127	71	55	127	60	50	127	51	42	123	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	71	122	109	57	122	63	50	62	56	44	55	50	39
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	66	122	122	60	122	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	30
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	91	117	117	65	117	117	60	117	82	50	117	61	43	87	53	37	63	46	33	56	41	44	49	36	39			
			Exposed	117	117	90	117	117	64	117	117	57	117	87	52	117	67	47	117	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	63	118	118	58	118	118	53	118	60	45	118	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	118	118	63	118	118	56	118	118	50	118	62	46	118	56	41	118	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	128	129	129	64	129	65	54	129	56	46	129	48	40	97	42	35	63	37	31	56	33	41
			Exposed	129	129	129	129	129	126	129	129	61	129	76	55	129	60	50	129	55	46	129	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	65	127	86	55	127	60	48	127	59	53	42	56	41	46	41	33
			Exposed	127	127	127	127	127	127	127	127	127	69	127	125	60	127	81	55	127	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33		
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	80	50	115	63	44
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	74	115	115	57	115	76	49	115	60	43	85	57	37	63	46	33	56	41	44
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	72	115	115	57	115	85	50	115	60	44	115	53	39
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	66	115	115	60	115	115	51	115	59	43	115	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	60	113*	64	53	113*	57	47
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	55	45	113*	48	40
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	64
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	63
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	92	115	115	61	115	89	52	115	63	45	101	55	39	70	49	35	59	43	46
			Exposed	115	115	115	115	115	115	115	115	77	115	115	62	115	115	56	115	86	51	115	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	41
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	63	115	115	53	115	62	46	115	54	40	64	47	35	56	41	31	50	37	41
			Exposed	115	115	115	115	115	86	115	115	61	115	115	55	115	78	50	115	61	45	115	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	65	113*	81	55	113*	58	48	113*	51	42	113*	45	37	73	40	33
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	72	113*	113*	60	113*	71	55	113*	60	50	113*	51	42	113*	44	36	65	38	31	56	33	42	50	44	37	44	39	33		
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	64
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	63
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	91	117	117	65	117	117	60	117	82	50	117	61	43	87	53	37	63	46	33	56	41	44	49	36	39			
			Exposed	117	117	90	117	117	64	117	117	57	117	87	52	117	67	47	117	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	63	117	117	58	117	117	53	117	60	45	117	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	117	117	63	117	117	56	117	117	50	117	62	46	117	56	41	117	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	64	118	65	54	118	56	46	118	48	40	97	42	35	63	37	31	56	33	41
			Exposed	118	118	118	118	118	118	118	118	61	118	76	55	118	60	50	118	55	46	118	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	65	114*	86	55	114*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	69	114*	114*	60	114*	81	55	114*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	65	107	107	57	107	80	50	107	63	44
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	74	107	107	57	107	76	49	107	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	72	112*	112*	57	112*	85	50	112*	60	44	112*	53	39
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	66	112*	112*	60	112*	112*	51	112*	59	43	112*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	57	47
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	61	102*	63	52	102*	55	45	102*	48	40	98*	42	35	64	38	31
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	57
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	63	99*	79	54	99*	60	48	59	53	42	52	47	37
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	92	107	107	61	107	89	52	107	63	45	101	55	39	70	49	35	59	43	46
			Exposed	107	107	107	107	107	107	107	107	77	107	107	62	107	107	56	107	86	51	107	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	41
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	53	112*	62	46	112*	54	40	64	47	35
			Exposed	112*	112*	112*	112*	112*	86	112*	112*	61	112*	112*	55	112*	78	50	112*	61	45	112*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	65	102*	81	55	102*	58	48	102*	51	42	102*	45	37	73	40	33
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	72	102*	102*	60	102*	71	55	102*	60	50	102*	51	42	102*	44	36	65	38	31	56	33	42	50	44	37	44	39	33		
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	71	99*	99*	57	99*	63	50	62	56	44	55	50	39
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	66	99*	99*	60	99*	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	30
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	91	111	111	65	111	111	60	111	82	50	111	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	111	111	90	111	111	64	111	111	57	111	87	52	111	67	47	111	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	63	111	111	58	111	111	53	111	60	45	111	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	111	111	63	111	111	56	111	111	50	111	62	46	111	56	41	111	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	64	107*	65	54	107*	56	46	107*	48	40	97	42	35	63	37	31	56	33	41
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	61	107*	76	55	107*	60	50	107*	55	46	107*	50	42	104*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	65	104*	86	55	104*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	69	104*	104*	60	104*	81	55	104*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33		

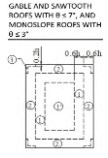
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

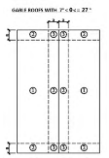
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

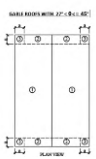
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

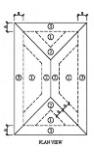












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

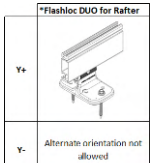
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	65	98	98	57	98	80	50	98	63	44
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	74	98	98	57	98	76	49	98	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	57	103*	85	50	103*	60	44
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	66	103*	103*	60	103*	103*	51	103*	59	43	103*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	60	91*	64	53	91*	57	47
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	61	91*	63	52	91*	55	45	91*	48	40	91*	42	35	64	38	31
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	57
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	80*	54	86*	60	48	59	53	42	52	47	37
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	92	98	98	61	98	89	52	98	63	45	98	55	39	70	49	35	59	43	46
			Exposed	98	98	98	98	98	98	98	98	77	98	98	62	98	98	56	98	86	51	98	68	47	98	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	63	103*	103*	53	103*	62	46	103*	54	40	64	47	35	56	41	31	50	37	41
			Exposed	103*	103*	103*	103*	103*	103*	86	103*	103*	61	103*	103*	55	103*	78	50	103*	61	45	103*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	65	91*	81*	55	91*	58	48	91*	51	42	91*	45	37	73	40	33
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	72	91*	91*	60	91*	71	55	91*	60	50	91*	51	42	91*	44	36	65	38	31	56	33	42	91*	44	36	44	39	33			
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	71	86*	86*	57	86*	63	50	62	56	44	55	50	39			
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	66	86*	86*	60	86*	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39		
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	91	103	103	65	103	103	60	103	82	50	103	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	103	103	90	103	103	64	103	103	57	103	87	52	103	67	47	103	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	63	109*	109*	53	109*	109*	53	109*	60	45	109*	52	38	61	45	33	53	39	44	47	34	39
			Exposed	109*	109*	63	109*	109*	56	109*	109*	50	109*	62	46	109*	56	41	109*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	64	99*	99*	65	99*	56	46	99*	48	40	97*	42	35	63	37	31	56	33	41
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	61	99*	76	55	99*	60	50	99*	55	46	99*	50	42	99*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	65	94*	86*	55	94*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	69	94*	94*	60	94*	82*	55	94*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33		
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	57	91	63	44			
			Exposed	91	91	91	91	91	91	91	91	91	91	91	91	62	91	91	56	91	86	51	91	68	47	91	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	72	95*	95*	57	95*	85*	50	95*	60	44	95*	53	39
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	66	95*	95*	60	95*	95*	51	95*	59	43	95*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	60	79*	64	53	79*	57	47
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	61	79*	63	52	79*	55	45	79*	48	40	79*	42	35	64	38	31
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64*	75*	75*	57			
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	75*	54	75*	60	48	59	53	42	52	47	37
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	61	91	89	52	91	63	45	91	55	39	70	49	35	59	43	46
			Exposed	91	91	91	91	91	91	91	91	77	91	91	62	91	91	56	91	86	51	91	68	47	91	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*
			Exposed	95*	95*	95*	95*	95*	86*	95*	95*	61	95*	95*	55	95*	78	50	95*	61	45	95*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	79*	60	79*	71*	55	79*	60	50	79*	51	42	79*	44	36	65	38	31	56	33	42	50	44	37	44	39	33			
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64*	75*	75*	57	75*	75*	57
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	91	96	96	65	96	96	60	96	82	50	96	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	96	96	90	96	96	64	96	96	57	96	87	52	96	67	47	96	60	43	96	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	63	101*	101*	58	101*	101*	53	101*	60	45	101*	52	38	61	45	33	53	39	44	47	34	34
			Exposed	101*	101*	63	101*	101*	56	101*	101*	50	101*	62	46	101*	56	41	101*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	64	87*	65	54	87*	56	46	87*	48	40	87*	42	35	63	37	31	56	33	41
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	61	87*	76*	55	87*	60	50	87*	55	46	87*	50	42	87*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	65	82*	82*	55	82*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	71*	82*	82*	60	82*	81*	55	82*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	65	86	86	57	86	80	50	86	63	44
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	57	86	76	49	86	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	72*	84*	84*	57	84*	84*	50	84*	60	44	84*	53	39
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	66	84*	84*	60	84*	84*	51	84*	59	43	84*	51	38	61	44	33	53	39	44	47	35	30
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	63*	52	70*	48	40
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
		27-45	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	57*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	52	86	63	46
			Exposed	86	86	86	86	86	86	86	86	77	86	86	62	86	86	56	86	86	51	86	68	47	86	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	61	84*	84*	55	84*	78*	50	84*	61	45	84*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	55	70*	60*	50	70*	51	42	70*	44	36	65*	38	31	56	33	42	50	44	37
		27-45	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	60*	66*	64*	51	61*	55	44	53	48	38	46	42	33	41	37	44
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	65	90	90	60	90	82	50	90	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	90	90	90	90	90	64	90	90	57	90	87	52	90	67	47	90	60	43	90	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	63	93*	93*	58	93*	93*	53	93*	60	45	93*	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	93*	93*	63	93*	93*	56	93*	93*	50	93*	62	46	93*	56	41	93*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	64	77*	65	54	77*	56	46	77*	48	40	77*	42	35	63	37	31	56	33	41
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	61	77*	76*	55	77*	60	50	77*	55	46	77*	50	42	77*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	65*	73*	73*	55	73*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69*	73*	73*	60	73*	73*	55	73*	63*	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33

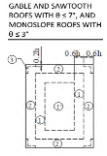
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

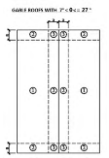
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

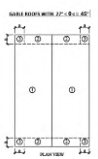
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

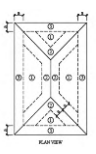












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

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ASCE 7-22	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

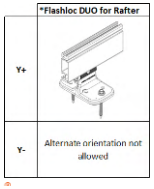
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	57	81	81	80	50	81	63	44
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	74	81	81	57	81	76	49	81	60	43	81	52	37	63	46	33	56	41	44
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	57	75*	75*	57	75*	75*	50	75*	60	44	75*	53	39			
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	66*	75*	75*	60	75*	75*	51	75*	59	43	75*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	56
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	61	81	81	52	81	63	45	81	55	39	70	49	35	59	43	46
			Exposed	81	81	81	81	81	81	81	81	77	81	81	62	81	81	56	81	81	51	81	68	47	81	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	75*	53	75*	62	46	75*	54	40	64	47	35	56	41	31	50	37	41
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	61	75*	75*	55	75*	75*	50	75*	61	45	75*	56	41	65*	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	63	93*	87*	56	93*	60	50
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	64	93*	71	55	93*	57	48	93*	50	42	93*	44	37	70	39	33
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	76*	89*	89*	59
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	68	89*	89*	68	89*	89*	57	89*	63	50	62	55	44	55	49	39
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	65	85	85	60	85	82	50	85	61	43	85	53	37	63	46	33	56	41	44	49	36	39
			Exposed	85	85	85	85	85	64	85	85	57	85	85	52	85	67	47	85	60	43	85	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	63	83*	83*	58	83*	83*	53	83*	60	45	83*	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	83*	83*	63	83*	83*	56	83*	83*	50	83*	62	46	83*	56	41	83*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	64*	69*	65*	54	69*	56	46	69*	48	40	69*	42	35	63*	37	31	56	33	41
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	61*	69*	69*	55	69*	60*	50	69*	55	46	69*	50	42	69*	43	35	62*	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	64	98*	98*	64	98*	63	50
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	64	98*	83	55	98*	60	48	59	53	42	52	46	37	46	41	33
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	57	77	77	57	77	77	65	77	77	57	77	77	50	77	63	44
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	57	77	76	49	77	60	43	77	57	37	63	46	33	56	41	44
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57	68*	68*	50	68*	60*	44	68*	53	39
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	68*	68*	60*	68*	68*	51	68*	59*	43	68*	51	38	61*	44	33	53	39	44	47	35	39
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	60	85*	64	53	85*	57	47
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	56
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	61	77	77	52	77	63	45	77	55	39	70	49	35	59	43	46
			Exposed	77	77	77	77	77	77	77	77	77	77	77	62	77	77	56	77	77	51	77	68	47	77	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*	68*	68*	53	68*	68*	53	68*	54	40	64*	47	35	56	41	31	50	37	41
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	61*	68*	68*	55	68*	68*	50	68*	61*	45	68*	56	41	65*	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	63	85*	85*	56	85*	60	50
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	64	85*	71	55	85*	57	48	85*	50	42	85*	44	37	70	39	33
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	74*	80*	80*	59
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	69*	80*	80*	57	80*	63	50	62	55	44	55	49	39
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	65	81	81	60	81	81	50	81	61	43	81	53	37	63	46	33	56	41	44	49	36	39
			Exposed	81	81	81	81	81	64	81	81	57	81	81	52	81	67	47	81	60	43	81	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	75*	58	75*	75*	53	75*	60	45	75*	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	75*	75*	63	75*	75*	56	75*	75*	50	75*	62	46	75*	56	41	75*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	60	93*	64	53	93*	56	47	93*	50	41
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	63	93*	64	53	93*	55	46	93*	48	40	90*	42	35	63	37	31	56	33	27
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	63	89*	88*	56	89*	63	50
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	64	89*	82*	55	89*	60	48	59	53	42	52	46	37	46	41	33

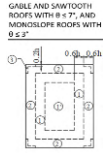
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

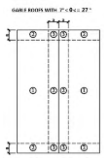
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

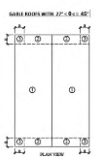
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

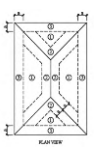












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

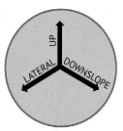
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

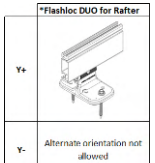
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	93	127	127	80	127	102	60	127	79	47	112	63	39	84	52	34	69	43	30	57	38	27
			Exposed	127	127	124	127	127	89	127	127	74	127	111	63	127	89	54	127	77	46	124	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	125	127	127	82	127	127	69	127	89	51	127	66	36	94	51	35	71	41	30	56	36	27	45	32	24
			Exposed	127	127	99	127	127	78	127	127	64	127	93	53	127	77	44	127	64	40	126	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	73	126	78	54	126	59	42	126	46	37	89	39	32	73	35	29
			Exposed	126	126	126	126	126	126	126	126	95	126	126	76	126	92	63	126	76	53	126	64	45	126	47	37	86	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	98	121	121	73	121	82	57	89	65	45	68	53	39	54	44	34
			Exposed	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	98	121	121	73	121	82	57	89	65	45	68	53	39	54	44	34
	C	0-7	Interior	127	127	127	127	127	98	127	127	81	127	125	69	127	98	59	127	84	51	127	73	44	93	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	127	97	58	127	81	49	125	69	42	97	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	127	127	127	127	127	88	127	127	71	127	126	58	127	86	49	127	71	42	127	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	127	85	49	127	68	41	127	56	37	85	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	126	126	126	126	126	126	126	126	126	126	126	86	126	126	70	126	85	59	126	71	50	126	52	39	95	41	34	74	35	29	59	31	25	48	27	22	41	24	20
			Exposed	126	126	70	126	81	56	126	65	46	126	54	40	125	45	36	93	40	33	80	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	95	121	121	79	121	98	67	121	73	50	73	57	40	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	121	121	94	121	121	76	121	91	62	121	76	52	87	64	44	72	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	127	127	87	127	127	72	127	101	60	127	85	51	127	73	44	114	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	127	73	44	103	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	127	127	76	127	127	61	127	89	50	127	72	42	127	60	38	95	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	127	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	126	126	126	126	126	91	126	126	73	126	86	59	126	71	50	126	59	42	126	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	126	70	49	126	57	41	126	47	37	95	40	33	80	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	121	121	121	121	121	121	121	121	98	121	121	80	121	98	67	121	83	57	99	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	121	97	67	121	80	55	90	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
10	B	0-7	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	93	119	119	80	119	102	60	119	79	47	105	63	39	84	52	34	69	43	30	57	38	27
			Exposed	119	119	119	119	119	89	119	119	74	119	119	63	119	89	54	119	77	46	119	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	82	119	119	69	119	89	51	119	66	40	94	51	35	71	41	30	56	36	27	45	32	24
			Exposed	119	119	99	119	119	78	119	119	64	119	93	53	119	77	44	119	64	40	119	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	73	124	78	54	124	59	42	124	46	37	89	39	32	73	35	29
			Exposed	124	124	124	124	124	124	124	124	95	124	124	76	124	92	63	124	76	53	124	64	45	124	47	37	86	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	98	121	121	73	121	82	57	89	65	45	68	53	39	54	44	34
			Exposed	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	98	121	121	73	121	82	57	89	65	45	68	53	39	54	44	34
	C	0-7	Interior	119	119	119	119	119	98	119	119	81	119	119	69	119	98	59	119	84	51	119	73	44	93	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	119	97	58	119	81	49	119	69	42	97	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	119	119	119	119	119	88	119	119	71	119	119	58	119	86	49	119	71	42	119	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	119	85	49	119	68	41	119	56	37	85	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	124	124	124	124	124	124	124	124	124	124	124	86	124	124	70	124	85	59	124	71	50	124	52	39	95	41	34	74	35	29	59	31	25	48	27	22	41	24	20
			Exposed	124	124	70	124	81	56	124	65	46	124	54	40	124	45	36	93	40	33	80	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	121	121	121	121	121	121	121	121	121	121	121	121	121	121	95	121	121	79	121	98	67	121	73	50	73	57	40	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	121	121	94	121	121	76	121	91	62	121	76	52	87	64	44	72	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	119	119	87	119	119	72	119	101	60	119	85	51	119	73	44	114	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	119	73	44	103	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	119	119	76	119	119	61	119	89	50	119	72	42	119	60	38	95	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	119	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	126	126	126	126	126	91	126	126	73	126	86	59	126	71	50	126	59	42	126	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	126	70	49	126	57	41	126	47	37	95	40	33	80	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	121	121	121	121	121	121	121	121	98	121	121	80	121	98	67	121	83	57	99	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	121	97	67	121	80	55	90	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
20	B	0-7	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	93	105	105	80	105	102	60	105	79	47	105	63	39	84	52	34	69	43	30	57	38	27
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		7-20	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	82	105	105	69	105	89	51	105	66	40	94	51	35	71	41	30	56	36	27	45	32	24
			Exposed	105	105	99	105	105	78	105	105	64	105	93	53	105	77	44	105	64	40	105	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	73	115	78	54	115	59	42	115	46	37	89	39	32	73	35	29
			Exposed	115	115	115	115	115	115	115	115	95	115	115	76	115	92	63	115	76	53	115	64	45	115	47	37	86	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	98	112*	112*	73	112*	82	57	89	65	45	68	53	39	54	44	34
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	85	112*	112*	72	112*	89	61	91	67	46	66	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	105	105	105	105	105	98	105	105	81	105	105	69	105	98	59	105	84	51	105	73	44	93	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	105	97	58	105	81	49	105	69	42	97	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	105	105	105	105	105	105	105	105	71	105	105	58	105	86	49	105	71	42	105	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	105	85	49	105	68	41	105	56	37	85	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	115	115	115	115	115	115	115	115	115	115	115	86	115	115	70	115	85	59	115	71	50	115	52	39	95	41	34	74	35	29	59	31	25	48	27	22	41	24	20
			Exposed	115	115	70	115	81	56	115	65	46	115	54	40	115	45	36	93	40	33	80	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	95	112*	112*	79	112*	98	67	112*	73	50	73	57	40	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	112*	112*	94	112*	112*	76	112*	91	62	112*	76	52	87	64	44	72	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	105	105	87	105	105	72	105	101	60	105	85	51	105	73	44	105	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	105	73	44	103	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	105	105	76	105	105	61	105	89	50	105	72	42	105	60	38	95	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	105	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	117	117	117	117	117	91	117	117	73	117	86	59	117	71	50	117	59	42	117	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	117	70	49	117	57	41	117	47	37	95	40	33	80	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	116	116	116	116	116	116	116	116	98	116	116	80	116	98	67	116	83	57	99	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	116	97	67	116	80	55	90	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

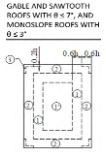
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

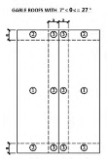
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

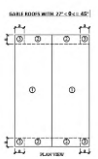
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

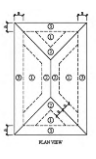












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

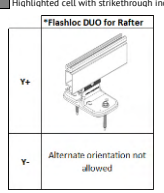
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	93	94	94	80	94	94	60	94	52	34	69	43	30	57	38	27						
			Exposed	94	94	94	94	94	89	94	94	74	94	94	63	94	89	54	94	77	46	94	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	82	94	94	69	94	89	51	94	66	40	94	51	35	71	41	30	56	36	27	45	32	24
			Exposed	94	94	94	94	94	78	94	94	64	94	93	53	94	77	44	94	64	40	94	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	73	100*	78	54	100*	59	42	100*	46	37	89*	39	32	73	35	29
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	95*	100*	100*	76	100*	92*	63	100*	76	53	100*	64	45	100*	47	37	86	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	73	95*	83*	57	89*	65	45	68	53	39	54	44	34
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	89*	91*	67	46	66	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	94	94	94	94	94	94	94	94	81	94	94	69	94	94	59	94	84	51	94	73	44	93	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	94	94	58	94	81	49	94	69	42	94	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	94	94	94	94	94	88	94	94	71	94	94	54	94	86	49	94	71	42	94	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	94	85	49	94	68	41	94	56	37	85	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	86	100*	100*	70	100*	85	59	100*	71	50	100*	52	39	95*	41	34	74	35	29	59	31	25	48	27	22	41	24	20
			Exposed	100*	100*	70	100*	81	56	100*	65	46	100*	54	40	100*	45	36	93*	40	33	80	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	79	95*	95*	67	95*	73	50	73	57	40	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	95*	95*	94*	95*	95*	76	95*	91*	62	95*	76	52	87*	64	44	72	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	94	94	87	94	94	72	94	94	60	94	85	51	94	73	44	94	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	94	73	44	94	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	94	94	76	94	94	61	94	89	50	94	72	42	94	60	38	94	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	94	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	104*	104*	104*	104*	104*	91	104*	104*	73	104*	86	59	104*	71	50	104*	59	42	104*	50	39	91	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	104*	70	49	104*	57	41	104*	47	37	95	40	33	80	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	98*	100*	100*	80	100*	98*	67	100*	83	57	99*	71	49	69	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	100*	97*	67	100*	80	55	91*	66	46	73	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
40	B	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	80	90	90	60	90	79	47	90	63	39	84	52	34	69	43	30	57	38	27
			Exposed	90	90	90	90	90	89	90	90	74	90	90	63	90	89	54	90	77	46	90	67	41	85	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	82	94*	94*	69	94*	89*	51	94*	66	40	94*	51	35	71	41	30	56	36	27	45	32	24
			Exposed	94*	94*	94*	94*	94*	78	94*	94*	64	94*	93*	53	94*	77	44	94*	64	40	94*	55	36	72	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	73*	80*	78*	54	80*	59	42	80*	46	37	80*	39	32	73*	35	29
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	76*	80*	80*	63	80*	76*	53	80*	64	45	80*	47	37	80*	38	32	68	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	73*	75*	75*	57	75*	66*	45	68*	53	39	54	44	34
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	61	75*	67*	46	66*	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	90	90	90	90	90	90	90	90	81	90	90	69	90	90	59	90	84	51	90	73	44	90	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	90	90	58	90	81	49	90	69	42	90	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	94*	94*	94*	94*	94*	88*	94*	94*	71	94*	94*	58	94*	86*	49	94*	71	42	94*	60	38	81	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	94*	85*	49	94*	68	41	94*	56	37	85*	47	33	70	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	70*	80*	80*	59	80*	71*	50	80*	52	39	80*	41	34	74*	35	29	59	31	25	48	27	22	41	24	20
			Exposed	80*	80*	70*	80*	80*	56	80*	65	46	80*	54	40	80*	45	36	80*	40	33	80*	37	30	60	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	68*	75*	73*	50	55	45	35	43	39	31	38	34	27	34	30	24
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	62	75*	75*	52	75*	65*	44	72*	55	40	60	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	93	93	87	93	93	72	93	93	60	93	85	51	93	73	44	93	64	40	91	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	93	73	44	93	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	97*	97*	76	97*	97*	61	97*	89	50	97*	72	42	97*	60	38	95*	51	35	79	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	97*	60	38	90	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	88*	88*	88*	88*	88*	88*	88*	88*	73	88*	86*	59	88*	71	50	88*	59	42	88*	50	39	88*	40	33	69	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	88*	70	49	88*	57	41	88*	47	37	88*	40	33	80*	37	30	68	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	82*	82*	67	82*	82*	55	82*	66	46	73*	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
			Exposed	82*	82*	67	82*	80*	55	82*	66	46	73*	56	40	60	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
50	B	0-7	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	80	84	84	60	84	79	47	84	63	39	84	52	34	69	43	30	57	38	27
			Exposed	84	84	84	84	84	84	84	84	74	84	84	63	84	84	54	84	77	46	84	67	41	84	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	69*	80*	80*	51	80*	66	40	80*	51	35	71*	41	30	56	36	27	45	32	24
			Exposed	80*	80*	80*	80*	80*	78*	80*	80*	64	80*	80*	53	80*	77*	44	80*	64	40	80*	55	36	72*	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	54	66*	66*	54	66*	59*	42	66*	46	37	66*	39	32	66*	35	29
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	63*	66*	66*	53	66*	64*	45	66*	47	37	66*	38	32	66*	33	27	54	29	24	44	26	21	39	23	19
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	57*	62*	62*	45	62*	54*	39	54*	44	34			
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	61*	62*	62*	46	62*	52	38	50	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	84	84	84	84	84	84	84	84	81	84	84	69	84	84	59	84	84	51	84	73	44	84	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	84	84	58	84	81	49	84	69	42	84	59	38	83	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	80*	80*	80*	80*	80*	80*	80*	80*	71*	80*	80*	58	80*	80*	49	80*	71*	42	80*	60	38	80*	45	32	60	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	80*	80*	49	80*	68*	41	80*	56	37	80*	47	33	70*	41	30	58	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	59*	66*	66*	50	66*	52	39	66*	41	34	66*	35	29	59*	31	25	48	27	22	41	24	20
			Exposed	66*	66*	66*	66*	66*	56	66*	66*	46	66*	54	40	66*	45	36	66*	40	33	66*	37	30	60*	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	50	62*	57*	40	56*	45	35	43	39	31	38	34	27	34	30	24
			Exposed	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	62*	53*	62*	62*	44	62*	56*	40	60*	48	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	87	87	87	87	87	72	87	87	60	87	85	51	87	73	44	87	64	40	87	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	87	73	44	87	61	39	85	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	88*	88*	76*	88*	88*	61	88*	88*	50	88*	72	42	88*	60	38	88*	51	35	79*	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	88*	60	38	88*	49	34	72	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	72*	59	72*	71*	50	72*	59	42	72*	50	39	72*	40	33	69*	34	28	55	29	24	44	26	21	38	23	19	34	20	25
			Exposed	72*	70*	49	72*	57	41	72*	47	37	72*	40	33	72*	37	30	68*	33	28	59	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	67*	68*	68*	57	68*	68*	49	68*	54	39	52	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	68*	68*	67*	68*	68*	55	68*	66*	46	68*	56	40	60*	48	36	50	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

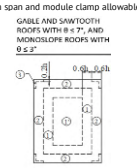
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

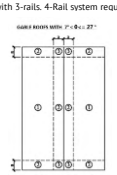
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

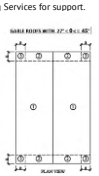
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

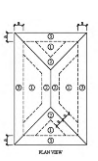












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Rail Type	Rail Direction	Clamp	Attachment	

SPAN TABLES

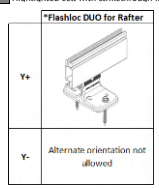
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

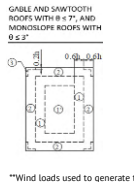
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	60	77	77	47	77	63	39	77	52	34	69	43	30	57	38	27
			Exposed	77	77	77	77	77	77	77	77	74	77	77	63	77	77	54	77	77	46	77	67	41	77	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	51	67*	66*	40	67*	51	35	67*	41	30	56	36	27	45	32	24
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	64*	67*	67*	53	67*	67*	44	67*	64*	40	67*	55	36	67*	42	31	54	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	42	56*	46	37	56*	39	32	56*	35	29			
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	56*	45	56*	56*	47	37	56*	38	32	56*	33	27	54*	29	24	44	26	21	30	23	19
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	53*	39	53*	44	34			
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	46*	53*	52*	38	50*	42	33	41	36	29	36	32	25	32	29	23
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	69	77	77	59	77	77	51	77	73	44	77	57	37	73	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	77	77	58	77	77	49	77	69	42	77	59	38	77	51	34	72	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	58*	67*	67*	49	67*	67*	42	67*	60*	38	67*	45	32	60*	38	28	46	32	24	39	28	21	34	25	19	30	22	25
			Exposed	67*	67*	49	67*	67*	41	67*	56	37	67*	47	33	67*	41	30	58*	37	27	50	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	50*	56*	52*	39	56*	41	34	56*	35	29	56*	31	25	48*	27	22	41	24	20
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	46	56*	54*	40	56*	45	36	56*	40	33	56*	37	30	56*	31	26	47	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	40	53*	45	35	43	39	31	38	34	27	34	30	24
			Exposed	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	52*	53*	53*	44	53*	53*	40	53*	53*	40	53*	48*	36	44	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	81	81	81	81	81	72	81	81	60	81	81	51	81	73	44	81	64	40	81	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	81	73	44	81	61	39	81	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	74*	74*	74*	74*	74*	61	74*	74*	50	74*	72*	42	74*	60	38	74*	51	35	74*	44	32	57	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	74*	60	38	74*	49	34	72*	41	31	59	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	59*	61*	61*	50	61*	59*	42	61*	50	39	61*	40	33	61*	34	28	55*	29	24	44	26	21	38	23	19	34	20	25
			Exposed	61*	61*	49	61*	57*	41	61*	47	37	61*	40	33	61*	37	30	61*	33	28	59*	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	57*	58*	58*	50*	58*	54*	39	52*	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	58*	58*	58*	58*	58*	55*	58*	58*	46	58*	56*	40	58*	48	36	51*	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
70	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	60	70	70	47	70	63	39	70	52	34	69	43	30	57	38	27
			Exposed	70	70	70	70	70	70	70	70	70	70	70	63	70	70	54	70	70	46	70	67	41	70	52	35	67	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	51*	58*	58*	40	58*	51*	35	58*	41	30	56*	36	27	45	32	24
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	53*	58*	58*	44	58*	58*	40	58*	55*	36	58*	42	31	54*	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	46*	37	48*	39	32	48*	35	29
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	45*	48*	47*	37	48*	38	32	48*	33	27	48*	29	24	44*	26	21	39	23	19
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	39	46*	44*	34
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	38	46*	42*	33	41*	36	29	36	32	25	32	29	23
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	69	70	70	59	70	70	51	70	70	44	70	57	37	70	45	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	70	70	58	70	70	49	70	69	42	70	59	38	70	51	34	70	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	45	32	58*	38	28	46	32	24	39	28
			Exposed	58*	58*	49	58*	58*	41	58*	56*	37	58*	47	33	58*	41	30	58*	37	27	50*	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	39	48*	41	34	48*	35	29	48*	41	24
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	40	48*	45*	36	48*	40	33	48*	37	30	48*	31	26	47*	27	22	39	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	45*	35	43*	39	31	38	34	27	34	30	24			
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	40*	46*	46*	36	44*	39	31	37	33	26	32	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	75	75	75	75	75	72	75	75	60	75	75	51	75	73	44	75	64	40	75	56	36	70	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	75	73	44	75	61	39	75	52	35	72	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	64*	64*	64*	64*	64*	61*	64*	64*	50	64*	64*	42	64*	60*	38	64*	51	35	64*	44	32	57*	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	64*	60*	38	64*	49	34	64*	41	31	59*	37	28	50	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	53*	50*	53*	53*	42	53*	50*	39	53*	40	33	53*	34	28	53*	29	24	44	26	21	38	23	19	34	20	25
			Exposed	53*	53*	49*	53*	53*	41	53*	47*	37	53*	40	33	53*	37	30	53*	33	28	53*	31	25	45	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	49*	50*	50*	39	50*	42	34	41	37	29	36	32	25	32	28	22	28	25	20
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	40	50*	48*	36	50*	42	33	43	38	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
80	B	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	62	47	62	62	39	62	52	34	62	43	30	57	38	27
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	54	62	62	46	62	62	41	62	52	35	62	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	40	51*	51*	35	51*	41	30	51*	36	27	45*	32	24
			Exposed	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	44	51*	51*	40	51*	51*	36	51*	42	31	51*	36	26	42	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	37*	43*	39*	32	43*	35	29
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	38*	32	43*	33	27	43*	29	24	43*	26	21
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	35*
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	40*	33	40*	37*	29	36*	32	25	32	29	23
	C	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	51	62	62	44	62	57	37	62	42	31	59	39	27	48	34	24	41	30	21	36	26	19
			Exposed	62	62	58	62	62	49	62	62	42	62	59	38	62	51	34	62	45	31	62	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	49*	51*	51*	42	51*	51*	38	51*	45*	32	51*	45*	32	51*	38	28	46*	32	24	39	28	21
			Exposed	51*	51*	49*	51*	51*	41	51*	51*	37	51*	47*	33	51*	41	30	51*	37	27	50*	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	~~16~~
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	39*	43*	43*	31	25	43*	27	22	41*	24	20
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	43*	36	43*	40*	33	43*	37*	30	43*	31	26	43*	27	22	39*	23	19	34	20	25	30	18	22	27	24	20
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	35*	40*	40*	30	38*	34	27	34	30	24
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	31	38*	34	27	34	30	24
	D	0-7	Interior	69	69	69	69	69	69	69	69	60	69	69	51	69	69	44	69	64	40	69	56	36	69	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23
			Exposed	69	69	44	69	61	39	69	52	35	69	45	31	62	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	57*	57*	57*	57*	57*	57*	57*	57*	50*	57*	57*	42	57*	57*	38	57*	51*	35	57*	44	32	57*	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	57*	57*	38	57*	49*	34	57*	41	31	57*	37	28	50*	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	~~17~~	19	21	~~15~~	25	18	~~14~~
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	42*	47*	47*	39	47*	40	33	47*	34	28	47*	29	24	44*	26	21	38	23	19	34	20	25
			Exposed	47*	47*	47*	47*	47*	41*	47*	47*	37	47*	40	33	47*	37	30	47*	33	28	47*	31	25	45*	26	21	38	22	18	33	19	24	29	25	21	25	22	19	22	20	~~16~~
		27-45	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	39*	45*	42*	34	41*	37	29	36	32	25	32	28	22	28	25	20
			Exposed	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	40*	45*	45*	36	45*	42*	33	43*	39*	30	36	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

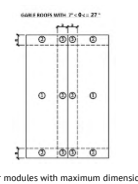
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

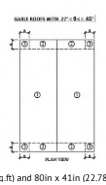
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

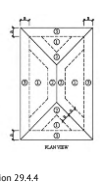
~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.











**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

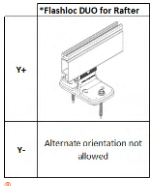
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	47	55	55	39	55	52	34	55	43	30	55	38	27			
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	55	55	46	55	55	41	55	52	35	55	42	30	54	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	40*	46*	46*	35	46*	41*	30	46*	36	27	45*	32	24
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	40*	46*	46*	36	46*	42*	31	46*	36	26	42*	31	23	37	27	20	32	24	18	29	21	24
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	32	38*	35*	29
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	32	38*	33*	27	38*	29	24	38*	26	21	38*	33	19
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	29	36*	32*	25	32*	29	23
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	44	55	55	37	55	45	31	55	39	27	48	34	24	41	30	21	36	26	19
			Exposed	55	55	55	55	55	49	55	55	42	55	55	38	55	51	34	55	45	31	55	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	45*	32	46*	38	28	46*	32	24	39	28	21	34	25	19	30	22	25
			Exposed	46*	46*	46*	46*	46*	41*	46*	46*	37	46*	46*	33	46*	41*	30	46*	37	27	46*	34	25	39	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	16
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	35*	29	38*	31	25	38*	27	22	38*	24	20
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	36*	38*	38*	33*	38*	37*	30	38*	31	26	38*	27	22	38*	23	19	34*	20	25	30	18	22	27	24	20
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	31	36*	34*	27	34*	30	24
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	31	36*	33*	26	32*	29	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	61	61	61	61	61	61	61	60	61	61	51	61	61	44	61	61	40	61	56	36	61	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23	
			Exposed	61	61	44	61	61	39	61	52	35	61	45	31	61	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	42	51*	51*	38	51*	51*	35	51*	44*	32	51*	37	27	43	31	23	37	27	20	32	24	18	29	21	23	25	18	21
			Exposed	51*	51*	38	51*	49*	34	51*	41	31	51*	37	28	50*	34	25	42	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	39*	42*	40*	33	42*	34	28	42*	29	24	42*	26	21	38*	23	19	34	20	25
			Exposed	42*	42*	42*	42*	42*	41*	42*	42*	37*	42*	40*	33	42*	37*	30	42*	33	28	42*	31	25	42*	26	21	38*	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	39*	40*	40*	34	40*	37*	29	36*	32	25	32	28	22	28	25	20
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	36*	40*	40*	33	40*	38*	30	36*	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
100	B	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	39	50	50	34	50	43	30	50	38	27			
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	50	41	50	50	35	50	42	30	50	36	26	44	32	23	38	28	20	34	25	18
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	35	42*	41*	30	42*	36*	27	42*	32	24
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	40*	42*	42*	36*	42*	42*	31	42*	36*	26	42*	31	23	37*	27	20	32	24	18	29	21	24
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	34*	29
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	33*	27	34*	29	24	34*	26	21	34*	23	19
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	29*	33*	32*	25	32*	29*	23
	C	0-7	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	37	50	45	31	50	39	27	48	34	24	41	30	21	36	26	19
			Exposed	50	50	50	50	50	49	50	50	42	50	50	38	50	50	34	50	45	31	50	40	28	49	34	24	40	29	21	35	25	18	30	22	24	27	19	21	24	26	18
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	32	42*	38*	28	42*	32	24	39*	28	21	34	25	19	30	22	25
			Exposed	42*	42*	42*	42*	42*	41*	42*	42*	37*	42*	42*	33	42*	41*	30	42*	37*	27	42*	34	25	39*	29	21	34	25	18	29	21	24	25	19	21	22	25	18	20	22	16
		20-27	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	29	34*	31*	25	34*	27	22	34*	24	20
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	33*	34*	34*	30*	34*	31*	26	34*	27	22	34*	23	19	34*	20	25	30*	18	22	27	24	20
		27-45	Interior	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	33*	27	33*	30*	24
			Exposed	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	33*	31*	33*	33*	26	32*	29*	23	28	25	20	25	22	18	22	20	24
	D	0-7	Interior	55	55	55	55	55	55	55	55	55	51	55	55	44	55	55	40	55	55	36	55	44	31	55	37	26	45	32	23	38	28	20	34	25	26	30	22	23		
			Exposed	55	55	44	55	55	39	55	52	35	55	45	31	55	40	28	54	37	26	48	33	24	39	28	20	33	24	26	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	46*	35	46*	44*	32	46*	37	27	43*	31	23	37	27	20	32	24	18	29	21	23	25	18	21		
			Exposed	46*	46*	38	46*	46*	34	46*	41*	31	46*	37	28	46*	34	25	42*	31	23	39	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	34*	28	38*	29	24	38*	26	21	38*	23	19	34*	20	25
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	33*	38*	37*	30	38*	33*	28	38*	31	25	38*	26	21	38*	22	18	33*	19	24	29	25	21	38*	22	19	22	20	16
		27-45	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	34*	36*	36*	29	36*	32*	25	32*	28	22	28	25	20
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	30	36*	33*	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20

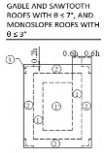
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

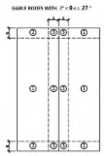
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

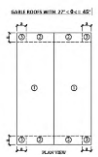
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

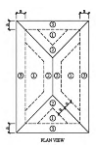












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

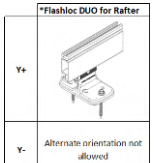
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	134	150	141	132	150	132	69	145	124	58	136	85	51	128	64	45
			Exposed	150	150	150	150	150	150	150	150	143	150	150	136	150	147	129	150	141	123	150	135	80	146	124	59	135	81	50	126	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	136	151	147	124	151	135	59	151	125	51	141	62	45	131	54	40
			Exposed	151	151	151	151	151	151	151	151	147	151	151	138	151	151	130	151	146	77	151	138	61	151	125	52	139	60	44	128	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	141	151	144	129	151	133	62	151	70	54	143	58	48	136	58	48
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	151	140	151	148	133	151	133	62	151	65	53	140	56	46	130	49	41	113	43	36	65	38	32
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	149	152	150	137	152	139	128	152	130	66	142	121	58	129	58	48
			Exposed	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	148	152	152	141	152	140	128	152	129	64	138	88	56	128	61	49	60	54	43	54	48	38
	C	0-7	Interior	150	150	150	150	150	150	150	150	147	150	150	140	150	150	133	150	144	127	150	138	102	150	128	62	139	95	53	129	65	46	109	57	40	74	50	35	61	44	31
			Exposed	150	150	132	150	143	125	150	135	84	150	129	63	144	123	57	138	91	52	132	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	151	151	151	151	151	151	151	151	151	151	151	142	151	151	134	151	151	127	151	143	65	151	129	55	144	63	47	132	55	41	67	48	36	58	42	31	51	37	42
			Exposed	151	151	134	151	149	125	151	139	62	151	131	56	151	124	51	143	62	46	135	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	145	151	151	137	151	138	71	151	126	57	144	59	49	134	52	43	126	46	38	80	41	34
			Exposed	151	151	151	151	151	143	151	149	134	151	140	126	151	151	132	151	125	56	147	62	51	135	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	145	152	152	145	152	144	132	152	133	81	143	124	59	132	65	51	64	57	45	57	51	40
			Exposed	152	152	152	152	152	151	152	152	142	152	146	134	152	139	127	152	132	75	148	126	61	133	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	150	150	150	150	150	142	150	150	134	150	145	127	150	138	101	150	132	70	149	127	61	137	87	52	127	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	150	138	99	150	131	65	145	124	58	138	93	53	132	71	48	126	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	151	151	151	151	151	145	151	151	135	151	151	128	151	143	65	151	135	59	151	128	54	142	61	46	129	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	151	142	64	151	133	57	151	125	52	144	63	47	135	57	42	128	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	151	151	151	151	151	151	151	151	151	151	146	151	151	137	151	144	130	151	137	65	151	138	76	55	141	57	47	131	49	41	112	43	36	65	38	32	57	34	42
			Exposed	151	151	137	151	142	128	151	133	62	151	125	56	147	62	51	140	56	47	134	51	43	123	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	143	131	152	69	140	97	57	128	62	49	60	54	43	53	48	38	47	42	34
			Exposed	152	152	145	152	148	136	152	140	128	152	133	78	147	126	61	139	90	56	131	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
10	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	134	141	132	69	141	124	58	136	85	51	128	64	45
			Exposed	141	141	141	141	141	141	141	141	141	141	141	136	141	141	129	141	141	123	141	135	80	141	124	59	135	81	50	126	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	124	141	135	59	141	125	51	141	61	45	131	54	40
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	130	141	141	77	141	138	61	141	125	52	139	60	44	128	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	144	129	147	133	62	147	70	54	143	58	48	136	58	48
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	140	147	147	133	147	133	62	147	65	53	140	56	46	130	49	41	113	43	36	65	38	32	57	34	42
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	149	151	150	137	151	139	128	151	130	66	142	121	58	129	58	48
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	148	151	151	141	151	140	128	151	129	64	138	88	56	128	61	49	60	54	43	54	48	38
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	138	102	141	128	62	139	95	53	129	65	46	109	57	40	74	50	35	61	44	31
			Exposed	141	141	132	141	141	125	141	141	84	141	129	63	141	123	57	138	91	52	132	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	127	141	141	65	141	129	55	141	63	47	132	55	41	67	48	36	58	42	31	51	37	42
			Exposed	141	141	134	141	141	125	141	139	62	141	131	56	141	124	51	141	62	46	135	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	141	147	144	129	147	133	62	147	70	54	143	58	48
			Exposed	147	147	147	147	147	143	147	147	134	147	140	126	147	132	61	147	125	56	147	62	51	135	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	145	151	151	145	151	144	132	151	133	81	143	124	59	132	65	51	64	57	45	57	51	40
			Exposed	151	151	151	151	151	151	151	151	142	151	146	134	151	139	127	151	132	75	148	126	61	133	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	133	141	141	127	141	138	102	141	128	62	139	95	53	129	65	46	109	57	40	74	50	35	61	44	31
			Exposed	141	138	99	141	131	65	141	141	58	138	93	53	132	71	48	126	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	136	141	141	124	141	135	59	141	125	51	141	61	45	131	54	40
			Exposed	141	141	141	141	141	141	141	141	141	141	141	138	141	141	130	141	141	77	141	138	61	141	125	52	139	60	44	128	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	141	147	147	141	147	144	129	147	133	62	147	70	54	143	58	48
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	140	147	147	133	147	133	62	147	65	53	140	56	46	130	49	41	113	43	36	65	38	32	57	34	42
		27-45	Interior	148	148	148	148	148	148	148	148	148	148	148	146	148	148	137	148	144	130	148	137	65	148	76	55	141	57	47	131	49	41	112	43	36	65	38	32	57	34	42
			Exposed	148	148	137	148	142	128	148	133	62	148	125	56	147	62	51	140	56	47	134	51	43	123	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	152	152	152	152	152	152	152	152	152	152	152	152	152	152	145	152	150	138	152	143	131	152	131	69	140	97	57	128	62	49	60	54	43	53	48	38	47	42	34
			Exposed	152	152	145	152	148	136	152	140	128	152	133	78	147	126	61	139	90	56	131	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
20	B	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	124	127	127	69	127	124	58	127	85	51	127	64	45	127	64	45
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	123	127	127	80	127	124	59	127	81	50	126	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	124	128	128	59	128	125	51	128	61	45	128	54	40	128	54	40
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	77	128	128	61	128	125	52	128	60	44	128	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	129	136	133	62	136	70	54	136	58	48
			Exposed	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	133	136	133	62	136	65	53	136	56	46	130	49	41	113	43	36	65	38	32
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	141	141	137	141	139	128	141	141	66	140	121	58	129	58	48
			Exposed	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	140	128	141	129	64	138	88	56	128	61	49	60	54	43	54	48	38
	C	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	102	127	127	62	127	127	62	127	65	46	109	57	40	74	50	35	61	44	31
			Exposed	127	127	127	127	127	125	127	127	84	127	127	63	127	123	57	127	91	52	127	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	127	128	128	65	128	128	55	128	63	47	128	65	46	128	61	45	128	58	42	31	51	37	42
			Exposed	128	128	128	128	128	125	128	128	62	128	128	56	128	124	51	128	62	46	128	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	129	136	133	62	136	70	54	136	58	48
			Exposed	136	136	136	136	136	136	136	136	134	136	136	126	136	132	61	136	125	56	136	62	51	135	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	132	141	141	133	141	139	128	141	141	66	140	121	58	129	58	48
			Exposed	141	141	141	141	141	141	141	141	141	141	141	134	141	139	127	141	132	75	141	126	61	133	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	101	127	127	70	127	127	61	127	87	52	127	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	127	127	99	127	127	65	127	124	58	127	93	53	127	71	48	126	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	65	128	128	59	128	128	54	128	61	46	128	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	128	128	64	128	128	57	128	125	52	128	63	47	128	57	42	128	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	137	138	138	130	138	137	65	138	76	55	138	57	47	131	49	41	112	43	36	65	38	32	57	34	42
			Exposed	138	138	137	138	138	128	138	133	62	138	125	56	138	62	51	138	56	47	134	51	43	123	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	138	143	143	131	143	131	69	140	97	57	128	62	49	60	54	43	53	48	38	47	42	34
			Exposed	143	143	143	143	143	136	143	140	128	143	133	78	143	126	61	139	90	56	131	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34

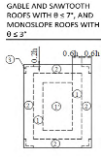
Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

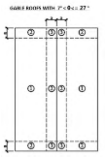
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

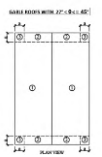
36 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

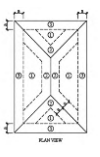












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

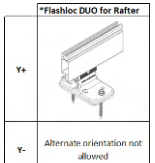
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	85	51	118	64	45
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	80	118	118	59	118	81	50	118	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	59	119	119	119	51	119	61	45	119	54	40					
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	77	119	119	61	119	119	52	119	60	44	119	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128
			Exposed	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	62	128	65	53	128	56	46	128	49	41	113	43	36	65	38	32
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	66	124	121	58
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	64	124	88	56	124	61	49	60	54	43	54	48	38			
	C	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	102	118	118	62	118	95	53	118	65	46	109	57	40	74	50	35	61	44	31
			Exposed	118	118	118	118	118	118	118	118	84	118	118	63	118	118	57	118	91	52	118	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	119	55	119	63	47	119	55	41	67	48	36	58	42	31	51	37	42
			Exposed	119	119	119	119	119	119	119	119	62	119	119	56	119	119	51	119	62	46	119	57	42	71	48	36	57	41	31	49	36	35	38	42	31	34	37	28			
		20-27	Interior	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	71	128	126	57	128	59	49	128	52	43	126	46	38	80	41	34
			Exposed	128	128	128	128	128	128	128	128	128	128	128	126	128	128	61	128	125	56	128	62	51	128	52	43	125	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	81	124	124	59	124	65	51	64	57	45	57	51	40
			Exposed	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	75	124	124	61	124	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	118	70	118	118	61	118	87	52	118	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	118	118	99	118	118	65	118	118	58	118	93	53	118	71	48	118	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	119	59	119	119	54	119	61	46	119	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	119	119	64	119	119	57	119	119	52	119	63	47	119	57	42	119	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	65	130	76	55	130	57	47	130	49	41	112	43	36	65	38	32	57	34	42
			Exposed	130	130	130	130	130	128	130	130	62	130	125	56	130	62	51	130	56	47	130	51	43	123	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	60	129	97	57	128	62	49	60	54	43	53	48	38	47	42	34
			Exposed	129	129	129	129	129	129	129	129	128	129	129	78	129	126	61	129	90	56	129	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	69	115	115	58	115	85	51	115	64	45						
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	80	115	115	59	115	81	50	115	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	59	116	116	59	116	116	51	116	61	45	116	54	40			
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	77	116	116	61	116	116	52	116	116	60	116	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	62	114*	70	54	114*	58	48
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	62	114*	114*	114*	114*	114*	114*	114*	114*	49	41	113	43	36	65	38	32
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	66	110*	110*	58
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	64	110*	88	56	110*	61	49	60	54	43	54	48	38			
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	102	115	115	62	115	95	53	115	65	46	109	57	40	74	50	35	61	44	31
			Exposed	115	115	115	115	115	115	115	115	84	115	115	63	115	115	57	115	91	52	115	71	48	114	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	65	116	116	55	116	63	47	116	55	41	67	48	36	58	42	31	51	37	42
			Exposed	116	116	116	116	116	116	116	116	62	116	116	56	116	116	51	116	62	46	116	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	71	114*	114*	57	114*	59	49	114*	52	43	114*	46	38	80	41	34
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	61	114*	114*	56	114*	62	51	114*	52	43	114*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	81	110*	110*	59	110*	65	51	64	57	45	57	51	40			
			Exposed	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	75	110*	110*	61	110*	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	101	118	118	70	118	118	61	118	87	52	118	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	118	118	99	118	118	65	118	118	58	118	93	53	118	71	48	118	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	119	59	119	119	54	119	61	46	119	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	119	119	64	119	119	57	119	119	52	119	63	47	119	57	42	119	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	77	119	119	65	119	76	55	119	57	47	119	49	41	112	43	36	65	38	32	57	34	42
			Exposed	119	119	119	119	119	119	119	119	62	119	119	56	119	62	51	119	56	47	119	51	43	119	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	69	115	97	57	115	62	49	60	54	43	53	48	38	47	42	34
			Exposed	115	115	115	115	115	115	115	115	115	115	115	78	115	115	61	115	90	56	115	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
50	B	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	69	108	108	58	108	85	51	108	64	45						
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	80	108	108	59	108	81	50	108	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	59	113*	113*	51	113*	61	45	113*	54	40
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	77	113*	113*	61	113*	113*	52	113*	60	44	113*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	62	103*	70	54	103*	58	48
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	62	103*	65	53	103*	56	46	103*	49	41	103*	43	36	65	38	32
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	66	100*	100*	58
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	64	100*	90*	56	100*	61	49	60	54	43	54	48	38			
	C	0-7	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	102	108	108	62	108	95	53	108	65	46	108	57	40	74	50	35	61	44	31
			Exposed	108	108	108	108	108	108	108	108	84	108	108	63	108	108	57	108	91	52	108	71	48	108	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	65	113*	113*	55	113*	113*	55	113*	63	42	71	48	36	57	41	31
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	62	113*	113*	56	113*	113*	51	113*	62	46	113*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	71	103*	103*	57	103*	59	49	103*	52	43	103*	46	38	80	41	34
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	61	103*	103*	56	103*	62	51	103*	52	43	103*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	65	51	64	57	45	57	51	40
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	75	100*	100*	61	100*	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	112	112	112	112	112	112	112	112	112	112	112	112	112	112	101	112	112	70	112	112	61	112	87	52	112	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	112	112	99	112	112	65	112	112	58	112	93	53	112	71	48	112	62	44	107	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	65	113	113	59	113	113	54	113	61	46	113	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	113	113	64	113	113	57	113	113	52	113	63	47	113	57	42	113	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	65	108*	76	55	108*	57	47	108*	49	41	108*	43	36	65	38	32	57	34	42
			Exposed	108*	108*	108*	108*	108*	108*	108*	108*	62	108*	108*	56	108*	62	51	108*	56	47	108*	51	43	108*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	69	105*	99*	57	105*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	78	105*	105*	61	105*	90	56	105*	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34

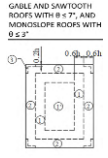
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

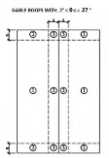
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

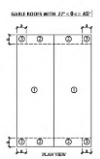
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

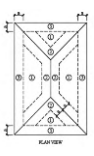












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

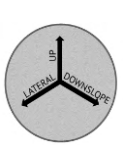
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

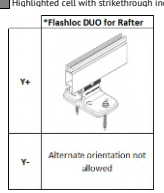
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	58	99	85	51	99	64	45			
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	80	99	99	59	99	81	50	99	61	43	91	54	38	65	47	34	57	42	30
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	77	105*	105*	61	105*	105*	52	105*	60	44	105*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	62	93*	70	54	93*	58	48
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	62	93*	65	53	93*	56	46	93*	49	41	93*	43	36	65	38	32
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	66	88*	88*	58
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	56	88*	88*	64	88*	88*	54	88*	61	49	60	54	43	54	48	38
	C	0-7	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	62	99	95	53	99	65	46	99	57	40	74	50	35	61	44	31
			Exposed	99	99	99	99	99	99	99	99	84	99	99	63	99	99	57	99	91	52	99	71	48	99	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	105*	65	105*	105*	55	105*	63	47	105*	55	41	67	48	36	58	42	31	51	37	42
			Exposed	105*	105*	105*	105*	105*	105*	105*	105*	62	105*	105*	56	105*	105*	51	105*	62	46	105*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
60		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	71	93*	93*	57	93*	59	49	93*	52	43	93*	46	38	80*	41	34
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	61	93*	93*	56	93*	62	51	93*	52	43	93*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	82*	88*	88*	59	88*	65	51	64	57	45	57	51	40			
			Exposed	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	88*	77*	88*	88*	61	88*	66	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	101	104	104	70	104	104	61	104	87	52	104	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	104	104	99	104	104	65	104	104	58	104	93	53	104	71	48	104	62	44	104	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	110*	65	110*	110*	59	110*	110*	54	110*	61	46	110*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	110*	110*	64	110*	110*	57	110*	110*	52	110*	63	47	110*	57	42	110*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	65	100*	76	55	100*	57	47	100*	49	41	100*	43	36	65	38	32	57	34	42
			Exposed	100*	100*	100*	100*	100*	100*	100*	100*	62	100*	100*	56	100*	62	51	100*	56	47	100*	51	43	100*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	69	96*	96*	69	96*	96*	57	96*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	78	96*	96*	61	96*	90*	56	96*	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
	B	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	85	51	92	64	45	
			Exposed	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	59	97*	97*	51	97*	61	45
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	77	97*	97*	61	97*	97*	52	97*	60	44	97*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	62	81*	70*	54	81*	58	48
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	49	81*	65	53	81*	56	46
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	67*	76*	76*	58
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	64	76*	76*	56	76*	61	49	60	54	43	54	48	38
70	C	0-7	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	62	92	92	53	92	65	46	92	57	40	74	50	35	61	44	31
			Exposed	92	92	92	92	92	92	92	92	84	92	92	63	92	92	57	92	91	52	92	71	48	92	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	97*	65	97*	97*	55	97*	63	47	97*	55	41	67	48	36	58	42	31
			Exposed	97*	97*	97*	97*	97*	97*	97*	97*	62	97*	97*	56	97*	97*	51	97*	62	46	97*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	71*	81*	81*	57	81*	59	49	81*	52	43	81*	46	38	80*	41	34
			Exposed	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	81*	61	81*	81*	56	81*	62	51	81*	52	43	81*	45	37	68	39	32	58	34	42	51	30	38	45	40	33
		27-45	Interior	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*
			Exposed	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	76*	75*	76*	76*	61	76*	67*	52	63	56	45	54	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	70	97	97	61	97	87	52	97	62	44	93	54	38	65	47	34	57	42	30	51	37	40
			Exposed	97	97	97	97	97	65	97	97	58	97	93	53	97	71	48	97	62	44	97	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	65	102*	102*	59	102*	102*	54	102*	61	46	102*	53	39	62	46	34	55	40	30	48	35	35
			Exposed	102*	102*	64	102*	102*	57	102*	102*	52	102*	63	47	102*	57	42	102*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	65	89*	76*	55	89*	57	47	89*	49	41	89*	43	36	65	38	32	57	34	42
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	62	89*	89*	56	89*	62	51	89*	56	47	89*	51	43	89*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	69	84*	84*	57	84*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	78*	84*	84*	61	84*	84*	56	84*	64	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
80	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	69	87	87	58	87	85	51	87	64	45
			Exposed	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	80	87	87	59	87	81	50	87	61	43	87	54	38	65	47	34	57	42	30
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	59	86*	86*	51	86*	61	45	86*	54	40
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	77*	86*	86*	61	86*	86*	52	86*	60	44	86*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	54	71*	58	48
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	62*	71*	65*	53	71*	56	46	71*	49	41	71*	43	36	65*	38	32
		27-45	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	66*	68*	68*	58*
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	64*	68*	68*	56	68*	61*	49	60*	54	43	54	48	38
	C	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	62	87	87	57	87	65	46	87	57	40	74	50	35	61	44	31
			Exposed	87	87	87	87	87	87	87	87	84	87	87	63	87	87	57	87	87	52	87	71	48	87	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	55	86*	86*	55	86*	67	48	86*	55	41	67	48	36	58	42	31
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	62	86*	86*	56	86*	86*	51	86*	62	46	86*	57	42	71	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	26
		20-27	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	56	71*	62*	51	71*	52	43	71*	45	37	68*	39	32	58	34	42	51	30	38	45	40	33
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	59*	68*	65*	51	64*	57	45	57	51	40
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*	74*	74*	57	74*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	56	74*	74*	56	74*	65*	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
	D	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	70	91	91	61	91	87	52	91	62	44	91	54	38	65	47	34	57	42	30	51	37	40
			Exposed	91	91	91	91	91	65	91	91	58	91	91	53	91	71	48	91	62	44	91	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	65	95*	95*	59	95*	95*	54	95*	61	46	95*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	95*	95*	64	95*	95*	57	95*	95*	52	95*	63	47	95*	57	42	95*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	78*	65	78*	76*	55	78*	57	47	78*	49	41	78*	43	36	65	38	32	57	34	42
			Exposed	78*	78*	78*	78*	78*	78*	78*	78*	62	78*	78*	56	78*	62	51	78*	56	47	78*	51	43	78*	44	36	64	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	69*	74*	74*	57	74*	62	49	60	54	43	53	48	38	47	42	34
			Exposed	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	74*	56	74*	74*	56	74*	65*	51	61	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34

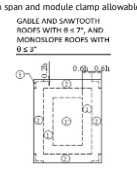
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

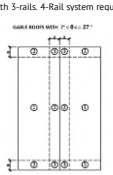
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

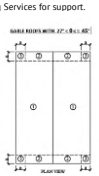
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

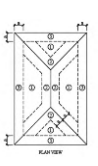












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

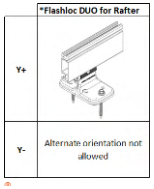
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	80	82	82	59	82	81	50	82	61	43	82	54	38	65	47	34	57	42	30
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	59	77*	77*	59	77*	77*	51	77*	61	45	77*	54	40
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	61	77*	77*	52	77*	60	44	77*	52	38	62	45	34	55	40	30	48	35	40
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	64*	54	64*	58*	48
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	64*	53	64*	56*	46	64*	49	41	64*	43	36	64*	38	32
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	58*
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	56*	61*	61*	49	60*	54*	43	54*	48	38
	C	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	62	82	82	53	82	65	46	82	57	40	74	50	35	61	44	31
			Exposed	82	82	82	82	82	82	82	82	82	82	82	63	82	82	57	82	82	52	82	71	48	82	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	65	77*	77*	55	77*	63	47	77*	55	41	67*	48	36	58	42	31	51	37	42
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	62	77*	77*	56	77*	77*	51	77*	62	46	77*	57	42	71*	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	57*	64*	59*	49	64*	52	43	64*	46	38	64*	41	34
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	61*	64*	64*	56*	64*	62*	51	64*	52	43	64*	45	37	64*	39	32	58*	34	42	51	30	38	45	40	33
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	59*	61*	61*	52*	61*	57*	45	57*	51	40			
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	52*	61*	56*	45	54*	49	39	48	43	34	42	38	30	37	33	40
	D	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	70	86	86	61	86	86	52	86	62	44	86	54	38	65	47	34	57	42	30	51	37	40
			Exposed	86	86	86	86	86	65	86	86	58	86	86	53	86	71	48	86	62	44	86	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	65	85*	85*	59	85*	85*	54	85*	61	46	85*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	85*	85*	64	85*	85*	57	85*	85*	52	85*	63	47	85*	57	42	85*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	70*	55	70*	57	47	70*	49	41	70*	43	36	65*	38	32	57	34	42
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	56	70*	62*	51	70*	56	47	70*	51	43	70*	44	36	64*	37	31	55	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	57	67*	67*	47	67*	62*	49	60*	54	43	53	48	38	47	42	34
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	67*	56	67*	64*	51	61*	55	43	52	47	37	45	41	32	40	36	43	35	31	38	31	42	34
100	B	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	69	78	78	58	78	78	51	78	64	45
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	59	78	78	50	78	61	43	78	54	38	65	47	34	57	42	30
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	59	70*	70*	51	70*	61*	45	70*	54	40
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	52	70*	60*	44	70*	52	38	62*	45	34	55	40	30	48	35	40
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	54*	58*	58*	48			
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	46	58*	58*	49	41	58*	43	36	58*	38	32
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	65	82*	82*	58
	C	0-7	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	62	78	78	53	78	65	46	78	57	40	74	50	35	61	44	31
			Exposed	78	78	78	78	78	78	78	78	78	78	78	63	78	78	57	78	78	52	78	71	48	78	57	41	70	49	35	58	42	30	51	37	40	45	33	35	40	44	31
		7-20	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	65*	70*	70*	55	70*	63*	47	70*	55	41	67*	48	36	58	42	31	51	37	42
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	62*	70*	70*	56	70*	70*	51	70*	62*	46	70*	57	42	70*	48	36	57	41	31	49	36	40	43	31	35	38	42	31	34	37	28
		20-27	Interior	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	49	58*	58*	49	58*	52*	43	58*	46	38	58*	41	34
			Exposed	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	58*	56*	58*	58*	51*	58*	52*	43	58*	45	37	58*	39	32	58*	34	42	51*	30	38	45	40	33
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	61
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	78*	82*	82*	59	82*	64	51	63	57	45	56	51	40
	D	0-7	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	70	82	82	61	82	82	52	82	62	44	82	54	38	65	47	34	57	42	30	51	37	40
			Exposed	82	82	82	82	82	65	82	82	58	82	82	53	82	71	48	82	62	44	82	56	40	66	48	34	56	41	44	49	35	38	42	31	33	37	41	29	33	37	26
		7-20	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	65	77*	77*	59	77*	77*	54	77*	61	46	77*	53	39	62	46	34	55	40	30	48	35	39	43	31	35
			Exposed	77*	77*	64	77*	77*	57	77*	77*	52	77*	63	47	77*	57	42	77*	52	39	65	48	35	55	40	30	47	35	39	41	30	34	36	40	29	32	35	26	42	31	23
		20-27	Interior	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	64*	55*	64*	57*	47	64*	49	41	64*	43	36	64*	38	32	57*	34	42
			Exposed	64*	64*	64*	64*	64*	64*	64*	64*	62*	64*	64*	56*	64*	64*	62*	51	64*	56*	47	64*	51	43	64*	44	36	64*	37	31	55*	32	41	48	43	35	42	38	31	38	34	28
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	57*	61*	61*	49	60*	54*	43	53*	48	38	47	42	34
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	56*	61*	61*	51	61*	55*	43	52*	47	37	45	41	32	40	36	43	35	31	38	31	42	34

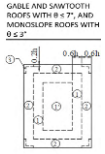
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

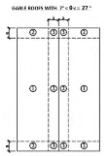
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

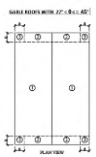
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

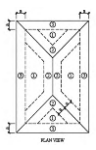












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

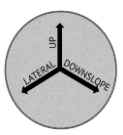
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

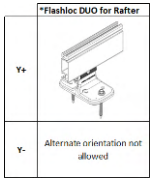
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	120	120	120	120	120	120	120	120	120	111	120	120	92	120	120	78	120	112	67	120	84	50	112	66	40	87	53	33	70	43	29	58	36	25	48	32	22
			Exposed	120	120	91	120	120	74	120	104	62	120	87	52	120	75	45	110	64	39	94	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	120	120	120	120	120	120	120	120	120	105	120	120	84	120	120	69	120	108	58	120	74	42	110	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	120	120	83	120	120	65	120	98	53	120	78	44	120	64	37	107	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	110	116	116	88	116	91	61	116	65	45	116	49	35	94	38	31	75	33	27	61	29	24			
			Exposed	116	116	116	116	116	103	116	116	79	116	96	64	116	77	53	116	63	44	116	53	38	96	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	82	112*	89	61	102	69	47	74	55	38	57	44	32	45	37	29			
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	107	112*	112*	86	112*	104	71	112*	87	60	112*	74	51	76	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	120	120	101	120	120	82	120	114	68	120	96	57	120	82	49	120	70	42	103	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	120	81	49	116	68	41	96	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	120	120	94	120	120	73	120	112	59	120	88	49	120	72	41	120	60	35	98	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	120	71	41	116	57	34	89	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	17	23	17	19	21	15	25	18	14			
		20-27	Interior	116	116	116	116	116	116	116	116	90	116	111	72	116	87	59	116	71	49	116	59	41	107	43	33	80	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	116	86	58	116	67	47	116	54	38	112	45	33	92	38	30	78	34	28	67	31	25	50	26	21	39	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	96	112*	112*	79	112*	97	66	112*	82	56	86	61	42	61	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	112*	112*	78	112*	92	63	112*	76	52	91	63	44	73	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	120	120	73	120	100	60	120	84	50	120	71	43	103	61	37	88	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	102	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	120	120	64	120	93	51	120	74	42	120	60	35	98	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	97	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	116	116	99	116	116	76	116	91	61	116	72	50	116	59	41	116	49	35	104	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	24	28	25	21
			Exposed	116	59	41	116	47	34	95	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	112*	112*	112*	112*	112*	102	112*	112*	82	112*	98	67	112*	82	56	103	69	48	83	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	112*	81	56	97	66	46	75	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17
10	B	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	78	111	111	67	111	84	50	111	66	40	87	53	33	70	43	29	58	36	25	48	32	22			
			Exposed	111	111	91	111	111	74	111	104	62	111	87	52	111	75	45	110	64	39	94	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	112	112	112	112	112	112	112	112	112	112	112	105	112	112	84	112	112	69	112	108	58	112	74	42	110	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	112	112	83	112	112	65	112	98	53	112	78	44	112	64	37	107	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	110	116	116	88	116	91	61	116	65	45	116	49	35	94	38	31	75	33	27	61	29	24
			Exposed	116	116	116	116	116	103	116	116	79	116	96	64	116	77	53	116	63	44	116	53	38	96	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	82	112*	89	61	102	69	47	74	55	38	57	44	32	45	37	29
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	107	112*	112*	86	112*	104	71	112*	87	60	112*	74	51	76	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	111	111	101	111	111	82	111	111	68	111	96	57	111	82	49	111	70	42	103	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	111	81	49	111	68	41	96	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	112	112	94	112	112	73	112	112	59	112	88	49	112	72	41	112	60	35	98	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	112	71	41	112	57	34	89	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	116	116	116	116	116	116	116	116	90	116	111	72	116	87	59	116	71	49	116	59	41	107	43	33	80	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	116	86	58	116	67	47	116	54	38	112	45	33	92	38	30	78	34	28	67	31	25	50	26	21	39	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	96	112*	112*	79	112*	112*	79	112*	112*	82	112*	112*	82	112*	89	61	102	69	47	74	55	38	57	44	32	45	37	29
			Exposed	112*	112*	78	112*	92	63	112*	76	52	91	63	44	73	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	111	111	73	111	100	60	111	84	50	111	71	43	103	61	37	88	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	102	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	112	112	64	112	93	51	112	74	42	112	60	35	98	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	97	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	116	116	99	116	116	76	116	91	61	116	72	50	116	59	41	116	49	35	104	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	24	28	25	21
			Exposed	116	59	41	116	47	34	95	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	112*	112*	112*	112*	112*	102	112*	112*	82	112*	98	67	112*	82	56	103	69	48	83	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	112*	81	56	97	66	46	75	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17
20	B	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	92	96	96	78	96	96	67	96	84	50	96	66	40	87	53	33	70	43	29	58	36	25	48	32	22
			Exposed	96	96	91	96	96	74	96	96	62	96	87	52	96	75	45	96	64	39	94	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	84	96	96	69	96	96	58	96	74	42	96	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	96	96	83	96	96	65	96	96	53	96	78	44	96	64	37	96	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	108*	91	61	108*	65	45	108*	49	35	94	38	31	75	33	27	61	29	24
			Exposed	108*	108*	108*	108*	108*	103*	108*	108*	79	108*	96	64	108*	77	53	108*	63	44	108*	53	38	96	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	82	103*	89	61	102*	69	47	74	55	38	57	44	32	45	37	29
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	86	103*	103*	71	103*	87	60	103*	74	51	76	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	96	96	96	96	96	96	96	96	68	96	96	57	96	82	49	96	70	42	96	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	96	81	49	96	68	41	96	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	96	96	94	96	96	73	96	96	59	96	88	49	96	72	41	96	60	35	96	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	96	71	41	96	57	34	89	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	108*	108*	108*	108*	108*	108*	108*	108*	90	108*	108*	72	108*	87	59	108*	71	49	108*	59	41	107*	43	33	80	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	108*	86	58	108*	67	47	108*	54	38	108*	45	33	92	38	30	78	34	28	67	31	25	50	26	21	39	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	96*	103*	103*	79	103*	97*	66	103*	82	56	86	61	42	61	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	103*	103*	78	103*	93*	63	103*	76	52	93*	63	44	73	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	96	96	73	96	96	60	96	84	50	96	71	43	96	61	37	88	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	96	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	96	96	64	96	93	51	96	74	42	96	60	35	96	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	96	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	111*	111*	99	111*	111*	76	111*	91	61	111*	72	50	111*	59	41	111*	49	35	104	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	24	28	25	21
			Exposed	111*	59	41	111*	47	34	95	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	107*	107*	107*	107*	107*	102*	107*	107*	82	107*	100*	67	107*	82	56	103*	69	48	83	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	107*	81	56	97	66	46	75	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17

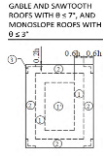
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

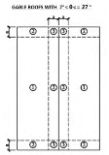
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

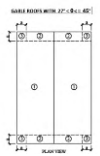
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

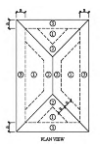












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

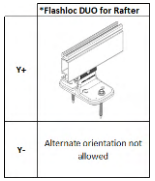
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	78	86	86	67	86	84	50	86	66	40	86	53	33	70	43	29	58	36	25	48	32	22			
			Exposed	86	86	86	86	86	74	86	86	62	86	86	52	86	75	45	86	64	39	86	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	84	94*	94*	84	94*	94*	69	94*	94*	58	94*	74	42	94*	55	34	78	42	29	59	34	25	47	30	22	38	27	20
			Exposed	94*	94*	83	94*	94*	65	94*	94*	53	94*	78	44	94*	64	37	94*	54	33	86	46	30	61	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	61	86*	65	45	86*	49	35	86*	38	31	75*	33	27	61	29	24
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	79*	86*	86*	64	86*	77*	53	86*	63	44	86*	53	38	86*	39	31	72	32	27	56	28	23	45	24	20	37	21	18	32	19	24
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	61	80*	69*	47	74*	55	38	57	44	32	45	37	29			
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	71*	80*	80*	60	80*	74*	51	76*	56	38	55	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	86	86	86	86	86	82	86	86	68	86	86	57	86	82	49	86	70	42	86	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	86	81	49	86	68	41	86	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	~~17~~	20	22	~~15~~
		7-20	Interior	94*	94*	94*	94*	94*	73	94*	94*	59	94*	86	49	94*	72	41	94*	60	35	94*	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	94*	71	41	94*	57	34	86	47	31	71	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	23	38	27	20	32	24	18	29	21	~~17~~	19	21	~~15~~
		20-27	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	72	86*	86*	59	86*	71	49	86*	59	41	86*	43	33	80*	34	28	62	29	24	50	26	21	40	23	19	34	20	25
			Exposed	86*	86*	58	86*	67	47	86*	54	38	86*	45	33	86*	38	30	78*	34	28	67	31	25	50	26	21	39	22	18	33	19	~~24~~	29	~~25~~	~~21~~	25	~~22~~	~~19~~	22	~~20~~	~~16~~
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	79*	80*	80*	66	80*	80*	56	80*	61	42	61	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	80*	80*	78*	80*	80*	63	80*	76*	52	80*	63	44	73*	54	37	60	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	~~25~~	21	19	~~22~~	18	~~25~~	~~20~~
	D	0-7	Interior	86	86	73	86	86	60	86	84	50	86	71	43	86	61	37	86	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	~~25~~	28	21	~~22~~	25	18	20
			Exposed	86	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	~~25~~	28	20	~~22~~	24	17	~~19~~	21	~~23~~	~~16~~	18	~~20~~	~~14~~	~~25~~	~~18~~	~~13~~
		7-20	Interior	86	86	64	86	86	51	86	74	42	86	60	35	86	50	32	79	43	29	66	37	27	47	31	23	36	26	19	31	23	~~25~~	27	20	~~22~~	24	17	20	21	~~23~~	~~17~~
			Exposed	86	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	~~22~~	23	17	~~19~~	20	~~22~~	~~17~~	18	~~20~~	~~15~~	~~24~~	~~17~~	~~13~~	~~21~~	~~15~~	~~11~~
		20-27	Interior	94*	94*	94*	94*	94*	76	94*	91*	61	94*	72	50	94*	59	41	94*	49	35	94*	42	32	76	33	27	58	28	23	46	24	20	37	21	18	32	19	~~24~~	28	~~25~~	~~21~~
			Exposed	94*	59	41	94*	47	34	94*	39	31	79	34	28	67	31	25	57	28	23	49	26	21	38	22	18	32	18	~~23~~	27	~~24~~	~~20~~	24	~~21~~	~~18~~	21	~~19~~	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	82*	86*	86*	67	86*	82*	56	86*	69	48	83*	60	41	58	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	~~25~~
			Exposed	86*	81*	56	86*	66	46	76*	55	38	61	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	~~24~~	20	18	~~21~~	17	~~23~~	~~19~~	~~23~~	~~21~~	~~17~~
40	B	0-7	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	67	83	83	50	83	66	40	83	53	33	70	43	29	58	36	25	48	32	22			
			Exposed	83	83	83	83	83	74	83	83	63	83	83	52	83	75	45	83	64	39	83	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	~~25~~	28	21	~~22~~
		7-20	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	69	82*	82*	58	82*	74*	42	82*	55	34	78*	42	29	59	34	25	47	30	22	38	27	20
			Exposed	82*	82*	82*	82*	82*	65	82*	82*	53	82*	78*	44	82*	64	37	82*	54	33	82*	46	30	61	35	26	45	30	~~22~~	35	26	19	31	23	~~25~~	27	20	~~22~~	24	18	~~20~~
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	61*	67*	65*	45	67*	49	35	67*	38	31	67*	33	27	61*	29	24
			Exposed	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	64*	67*	67*	53	67*	63*	44	67*	53	38	67*	39	31	67*	32	27	56	28	23	45	24	20	37	21	18	32	19	~~24~~
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	61*	63*	63*	47	63*	55*	38	57*	44	32	45	37	29
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	60*	63*	63*	51	63*	56*	38	55*	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	83	83	83	83	83	82	83	83	68	83	83	57	83	82	49	83	70	42	83	61	37	78	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	83	81	49	83	68	41	83	57	35	81	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	~~23~~	25	18	~~20~~	22	~~24~~	~~17~~	20	~~22~~	~~15~~
		7-20	Interior	82*	82*	82*	82*	82*	73*	82*	82*	59	82*	82*	49	82*	72*	41	82*	60	35	82*	50	32	68	37	27	50	31	23	38	27	20	32	24	18	29	21	~~23~~	25	19	21
			Exposed	82*	71*	41	82*	57	34	82*	47	31	71*	39	28	58	34	25	49	31	23	42	28	21	33	24	18	28	20	~~23~~	24	18	~~20~~	21	~~23~~	~~17~~	19	~~21~~	~~15~~	~~25~~	~~18~~	~~14~~
		20-27	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	59*	67*	67*	49	67*	59*	41	67*	43	33	67*	34	28	62*	29	24	50	26	21	40	23	19	34	20	~~25~~
			Exposed	67*	67*	58*	67*	67*	47	67*	54	38	67*	45	33	67*	38	30	67*	34	28	67*	31	25	50	26	21	39	22	18	33	19	~~24~~	29	~~25~~	~~21~~	25	~~22~~	~~19~~	22	~~20~~	~~16~~
		27-45	Interior	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	63*	56*	63*	61*	42	61*	47	34	46	38	29	36	32	25	32	28	22	28	25	20
			Exposed	63*	63*	63*	63*	63*	63*	63*	63*	52	63*	63*	44	63*	54*	37	60*	46	33	50	40	30	37	32	26	31	28	22	27	24	19	24	21	~~25~~	21	19	~~22~~	18	~~25~~	~~20~~
	D	0-7	Interior	85	85	73	85	85	60	85	84	50	85	71	43	85	61	37	85	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	~~25~~	28	21	~~22~~	25	18	20
			Exposed	85	61	37	84	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	~~25~~	28	20	~~22~~	24	17	~~19~~	21	~~23~~	~~16~~	18	~~20~~	~~14~~	~~25~~	~~18~~	~~13~~
		7-20	Interior	89*	89*	64	89*	89*	51	89*	74	42	89*	60	35	89*	50	32	79*	43	29	66	37	27	47	31	23	36	26	19	31	23	~~25~~	27	20	~~22~~	24	17	20	21	~~23~~	~~17~~
			Exposed	89*	50	32	75	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	~~22~~	23	17	~~19~~	20	~~22~~	~~17~~	18	~~20~~	~~15~~	~~24~~	~~17~~	~~13~~	~~21~~	~~15~~	~~11~~
		20-27	Interior	73*	73*	73*	73*	73*	73*	73*	73*	61	73*	72*	50	73*	59	41	73*	49	35	73*	42	32	73*	33	27	58	28	23	46	24	20	37	21	18	32	19	~~24~~	28	~~25~~	~~21~~
			Exposed	73*	59	41	73*	47	34	73*	39	31	73*	34	28	67*	31	25	57	28	23	49	26	21	38	22	18	32	18	~~23~~	27	~~24~~	~~20~~	24	~~21~~	~~18~~	21	~~19~~	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	67*	69*	69*	56	69*	69*	48	69*	60*	41	59*	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	69*	69*	56	69*	66*	46	69*	55	38	61*	47	34	50	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	~~24~~	20	18	~~21~~	17	~~23~~	~~19~~	~~23~~	~~21~~	~~17~~
50	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	67	77	77	50	77	66	40	77	53	33	70	43	29	58	36	25	48	32	22			
			Exposed	77	77	77	77	77	74	77	77	62	77	77	52	77	75	45	77	64	39	77	56	34	71	44	29	56	35	25	45	30	22	37	27	19	32	23	~~25~~	28	21	~~22~~
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	67*	58*	67*	67*	42	67*	55	34	67*	42	29	59*	34	25	47	30	22	38	27	20
			Exposed	67*	67*	67*	67*	67*	65	67*	67*	53	67*	67*	44	67*	64*	37	67*	54	33	67*	46	30	61*	35	26	45	30	22	35	26	19	31	22	~~25~~	27	20	~~22~~	24	18	~~20~~
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	45	55*	49*	35	55*	38	31	55*	33	27	55*	29	24			
			Exposed	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	53*	55*	55*	44	55*	53*	38	55*	39	31	55*	32	27	55*	28	23	45	24	20	37	21	18	32	19	~~24~~
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	48*	52*	52*	38	52*	45*	32	46*	37	29			
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	51*	52*	52*	38	52*	43	32	42	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	77	77	77	77	77	77	77	77	68	77	77	57	77	77	49	77	70	42	77	61	37	77	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	77	77	49	77	68	41	77	57	35	77	49	31	69	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	~~23~~	25	18	~~20~~	22	~~24~~	~~17~~	20	~~22~~	~~15~~
		7-20	Interior	67*	67*	67*	67*	67*	67*	67*	67*	59*	67*	67*	49	67*	67*	41	67*	60*	35	67*	50	32	67*	37	27	50	31	23	38	27	20	32	24	18	29	21	~~23~~	25	19	21
			Exposed	67*	67*	41	67*	57*	34	67*	47	31	67*	39	28	58*	34	25	49	31	23	42	28	21	33	24	18	28	20	~~23~~	24	18	~~20~~	21	~~23~~	~~17~~	19	~~21~~	~~15~~	~~25~~	~~18~~	~~14~~
		20-27	Interior	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	55*	49*	55*	55*	41	55*	43	33	55*	34	28	55*	29	24	50*	26	21	40	23	19	34	20	25
			Exposed	55*	55*	55*	55*	55*	47	55*	54*	38	55*	45	33	55*	38	30	55*	34	28	55*	31	25	50*	26	21	39	22	18	33	19	~~24~~	29	~~25~~	~~21~~	25	~~22~~	~~19~~	22	~~20~~	~~16~~
		27-45	Interior	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	42	52*	47*	34	47*	38	29	36	32	25	32	28	22	28	25	20
			Exposed	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	52*	44	52*	52*	37	52*	47*	33	50*	40	30	37	32	26	31	28	22	27	24	19	24	21	~~25~~	21	19	~~22~~	18	~~25~~	~~20~~
	D	0-7	Interior	80	80	73	80	80	60	80	80	50	80	71	43	80	61	37	80	53	33	76	47	30	58	36	26	46	31	22	37	27	19	32	23	~~25~~	28	21	~~22~~	25	18	20
			Exposed	80	61	37	80	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	~~25~~	28	20	~~22~~	24	17	~~19~~	21	~~23~~	~~16~~	18	~~20~~	~~14~~	~~25~~	~~18~~	~~13~~
		7-20	Interior	73*	73*	64*	73*	73*	51	73*	73*	42	73*	60	35	73*	50	32	73*	43	29	66*	37	27	47	31	23	36	26	19	31	23	~~25~~	27	20	~~22~~	24	17	20	21	~~23~~	~~17~~
			Exposed	73*	50	32	73*	41	28	60	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	~~22~~	23	17	~~19~~	20	~~22~~	~~17~~	18	~~20~~	~~15~~	~~24~~	~~17~~	~~13~~	~~21~~	~~15~~	~~11~~
		20-27	Interior	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	60*	50	60*	59*	41	60*	49	35	60*	42	32	60*	33	27	58*	28	23	46	24	20	37	21	18	32	19	~~24~~	28	~~25~~	~~21~~
			Exposed	60*	59*	41	60*	47	34	60*	39	31	60*	34	28	60*	31	25	57*	28	23	49	26	21	38	22	18	32	18	~~23~~	27	~~24~~	~~20~~	24	~~21~~	~~18~~	21	~~19~~	~~15~~	19	~~17~~	~~14~~
		27-45	Interior	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	57*	56*	57*	57*	48	57*	57*	41	57*	45	33	43	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	57*	57*	56*	57*	57*	46	57*	55*	38	57*	47	34	50*	40	30	42	35	28	36	32	25	30	27	21	26	23	18	22	20	~~24~~	20	18	~~21~~	17	~~23~~	~~19~~	~~23~~	~~21~~	~~17~~

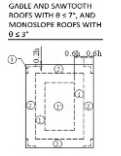
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

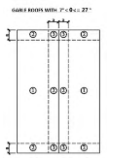
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

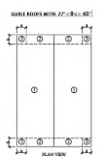
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

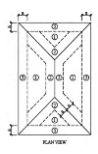












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

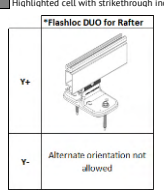
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	50	68	66	40	68	53	33	68	43	29	58	36	25	48	32	22
			Exposed	68	68	68	68	68	68	68	68	62	68	68	52	68	68	45	68	64	39	68	56	34	68	44	29	56	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	42	56*	55*	34	56*	42	29	56*	34	25	47	30	22	38	27	20
			Exposed	56*	56*	56*	56*	56*	56*	56*	56*	53*	56*	56*	44	56*	56*	37	56*	54*	33	56*	46	30	56*	35	26	45	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	45*	47*	47*	35	47*	38	31	47*	33	27	47*	29	24
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	44*	47*	47*	38	47*	39	31	47*	32	27	47*	28	23	45*	24	20	37	21	18	32	19	24
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	38*	44*	44*	32	44*	37	29
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	39*	44*	43*	32	42*	35	28	34	30	24	30	27	21	27	24	19
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	57	68	68	49	68	68	42	68	61	37	68	48	31	61	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	68	68	49	68	68	41	68	57	35	68	49	31	68	43	28	60	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	56*	49*	56*	56*	41	56*	56*	35	56*	50*	32	56*	37	27	50*	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	56*	56*	41	56*	56*	34	56*	47	31	56*	39	28	56*	34	25	49*	31	23	42	28	21	33	24	18	28	20	23	24	18	20	23	17	19	21	15	18	14			
		20-27	Interior	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	47*	41*	47*	43*	33	47*	34	28	47*	29	24	47*	26	21	40*	23	19	34	20	25
			Exposed	47*	47*	47*	47*	47*	47*	47*	47*	38	47*	45*	33	47*	38	30	47*	34	28	47*	31	25	47*	32	21	39	22	18	33	19	24	29	21	25	22	19	22	20	16		
		27-45	Interior	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	42*	44*	44*	34	44*	38*	29	36	32	25	32	28	22	28	25	20
			Exposed	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	44*	37	44*	44*	33	44*	40*	30	37	32	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20	
	D	0-7	Interior	74	74	73	74	74	60	74	74	50	74	71	43	74	61	37	74	53	33	74	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	74	61	37	74	51	32	71	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	62*	62*	62*	62*	62*	51	62*	62*	42	62*	60*	35	62*	50	32	62*	43	29	62*	37	27	47	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	62*	50	32	62*	41	28	60*	35	26	50	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	51*	50*	51*	51*	41	51*	49*	35	51*	42	32	51*	33	27	51*	28	23	46*	24	20	37	21	18	32	19	24	28	25	21
			Exposed	51*	51*	41	51*	47*	34	51*	39	31	51*	34	28	51*	31	25	51*	28	23	49*	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41	48*	45*	33	43*	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	48*	48*	48*	48*	48*	46*	48*	48*	38	48*	47*	34	48*	40	30	42*	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17
70	B	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	57	59	59	49	59	59	42	59	59	37	59	48	31	59	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	59	59	49	59	59	41	59	57	35	59	49	31	59	43	28	59	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	44*	49*	49*	37	49*	49*	33	49*	46*	30	49*	35	26	45*	30	22	35	26	19	31	22	25	27	20	22	24	18	20
			Exposed	49*	49*	41	49*	49*	34	49*	47*	31	49*	39	28	49*	34	25	49*	31	23	42*	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33	40*	34	28	40*	29	24	40*	26	21
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	33*	38*	37*	29
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	32	38*	35*	28	34*	30	24	30	27	21
	C	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	57	59	59	49	59	59	42	59	59	37	59	48	31	59	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	59	59	49	59	59	41	59	57	35	59	49	31	59	43	28	59	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	49*	41	49*	49*	35	49*	49*	32	49*	37	27	49*	31	23	38	27	20	32	24	18	29	21	23	25	19	21
			Exposed	49*	49*	41	49*	49*	34	49*	47*	31	49*	39	28	49*	34	25	49*	31	23	42*	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	40*	33	40*	34	28	40*	29	24	40*	26	21
			Exposed	40*	40*	40*	40*	40*	40*	40*	40*	38*	40*	40*	33	40*	38*	30	40*	34	28	40*	31	25	40*	26	21	39*	22	18	33	19	24	29	25	21	25	22	19	22	20	16
		27-45	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	33*	38*	38*	30	37*	33*	26	31	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	65	65	65	65	65	65	65	65	50	65	65	43	65	61	37	65	53	33	65	47	30	58	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	65	61	37	65	51	32	65	44	29	60	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	54*	54*	54*	54*	54*	51*	54*	54*	42	54*	54*	35	54*	50*	32	54*	43	29	54*	37	27	47*	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	54*	50*	32	54*	41	28	54*	35	26	50*	31	23	41	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	45*	41*	45*	45*	35	45*	42*	32	45*	33	27	45*	28	23	45*	24	20	37	21	18	32	19	24	28	25	21
			Exposed	45*	45*	41*	45*	45*	34	45*	39*	31	45*	34	28	45*	31	25	45*	28	23	45*	26	21	38	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	41*	42*	42*	33	42*	35	28	34	31	24	30	27	21	26	24	19	23	21	25
			Exposed	42*	42*	42*	42*	42*	42*	42*	42*	38*	42*	42*	34	42*	40*	30	42*	35	28	36	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17
80	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	40	52	52	33	52	43	29	52	36	25	48	32	22
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	45	52	52	39	52	52	34	52	44	29	52	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	34	43*	42*	29	43*	34	25	43*	30	22	38*	27	20
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	37*	43*	43*	33	43*	43*	30	43*	35	26	43*	30	22	35	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	35*	36*	36*	36*	36*	33*	27	36*	29	24
			Exposed	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	31*	36*	32*	27	36*	28	23	36*	24	20	36*	21	18	32*	19	24
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	34*	27	34*	34*	29
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	32*	34*	34*	28	34*	31*	24	30*	27	21	27	24	19
	C	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	42	52	52	37	52	48	31	52	38	26	49	32	23	40	28	20	34	25	17	30	22	23
			Exposed	52	52	49	52	52	41	52	52	35	52	49	31	52	43	28	52	37	26	52	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	35	43*	43*	32	43*	37*	27	43*	31	23	38*	27	20	32	24	18	29	21	23	25	19	21
			Exposed	43*	43*	41*	43*	43*	34	43*	43*	31	43*	39*	28	43*	34	25	43*	31	23	42*	28	21	33	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	36*	33*	36*	36*	30	36*	36*	28	36*	31*	25	36*	26	21	36*	22	18	33*	19	24	29	25	21	25	22	19	22	20	16
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	29	34*	34*	34*	34*	34*	29	34*	32*	25	32*	28	22	28	25	20
		27-45	Interior	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	30*	34*	33*	24	34*	34*	24	34*	34*	24	34*	34*	24	34*	34*	24
			Exposed	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	34*	33*	34*	34*	30*	34*	33*	26	31*	28	22	27	24	19	24	21	25	21	19	22	18	25	20
	D	0-7	Interior	57	57	57	57	57	57	57	57	50	57	57	43	57	57	37	57	53	33	57	47	30	57	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	57	57	37	57	51	32	57	44	29	57	38	26	52	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	48*	35	48*	48*	32	48*	43*	29	48*	37	27	47*	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	48*	48*	32	48*	41*	28	48*	35	26	48*	31	23	41*	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	39*	35*	39*	39*	32	39*	33	27	39*	28	23	39*	24	20	37*	21	18	32	19	24	28	25	21
			Exposed	39*	39*	39*	39*	39*	39*	39*	39*	31	39*	34*	28	39*	31	25	39*	28	23	39*	26	21	38*	22	18	32	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	33*	37*	35*	28	34*	31	24	30	27	21	26	24	19	23	21	25
			Exposed	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	37*	34*	37*	37*	30	37*	35*	28	36*	32	25	30	27	21	26	23	18	22	20	24	20	18	21	17	23	19	23	21	17

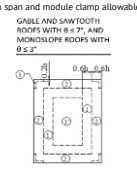
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

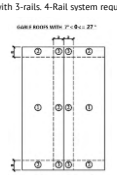
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

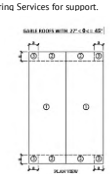
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

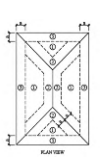












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

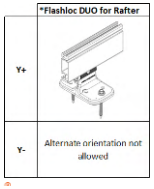
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	43	29	46	36	25	46	32	22
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	34	46	44	29	46	35	25	45	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	34*	38*	38*	34*	38*	38*	34*	25	38*	30	22	38*	27	20
			Exposed	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	37*	38*	38*	33	38*	38*	30	38*	35*	26	38*	30	22	35*	26	19	31	22	25	27	20	22	24	18	20
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	41	48*	44*	36
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	40	48*	42*	35	48*	37	30	48*	32	27	48*	29	24
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	36	45*	41*	32	40*	36	29
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	37	46	46	31	46	38	26	46	32	23	40	28	20	34	25	17	30	22	23
			Exposed	46	46	46	46	46	46	46	46	35	46	46	31	46	43	28	46	37	26	46	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	32	38*	37*	27	38*	31	23	38*	27	20	32	24	18	29	21	23	25	19	21
			Exposed	38*	38*	38*	38*	38*	34*	38*	38*	31	38*	38*	28	38*	34*	25	38*	31	23	38*	28	21	33	24	18	28	20	23	24	18	17	21	23	17	19	21	15	25	18	14
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	42*	48*	44*	37	48*	39	32	48*	34	28	48*	30	25
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	46*	48*	48*	38	48*	46*	38	48*	39	32	48*	34	28	48*	29	24	43*	25	21	38	22	19	34	20	16
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	44*	46*	46*	39	46*	43*	34	42*	38	30
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	39	46*	42*	33	41*	36	29	36	32	25
	D	0-7	Interior	51	51	51	51	51	51	51	51	50	51	51	43	51	51	37	51	51	33	51	47	30	51	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	51	51	37	51	51	32	51	44	29	51	38	26	51	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	42*	35	42*	42*	32	42*	42*	29	42*	37*	27	42*	31	23	36	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	42*	42*	32	42*	41*	28	42*	35	26	42*	31	23	41*	28	21	35	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	33*	27	35*	28	23	35*	24	20	35*	21	18	32*	19	24	28	25	21
			Exposed	35*	35*	35*	35*	35*	34*	35*	35*	31*	35*	34*	28	35*	31*	25	35*	28	23	35*	26	21	35*	22	18	32*	18	23	27	24	20	24	21	16	21	19	15	19	17	14
		27-45	Interior	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	43	50*	47*	37	45*	41	32	40	36	28	36	32	25
			Exposed	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	50*	46*	50*	50*	42	50*	49*	38	46*	41	33	39	35	28	34	31	24	30	27	21	26	23	19	23	21	17
100	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	33	42	42	29	42	36	25	42	32	22			
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	34	42	42	29	42	35	25	42	30	22	37	27	19	32	23	25	28	21	22
		7-20	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	34*	35*	35*	29	35*	34*	25	35*	30*	22	35*	27	20			
			Exposed	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	33*	35*	35*	30*	35*	35*	26	35*	30*	22	35*	26	19	31*	22	25	27	20	22	24	18	20
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	41*	43*	43*	36
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	40*	43*	42*	35	43*	43*	37	30	43*	32	27	43*	29	24
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	32	40*	36*	29
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	31	42	38	26	42	32	23	40	28	20	34	25	17	30	22	23
			Exposed	42	42	42	42	42	41	42	42	35	42	42	31	42	42	28	42	37	26	42	34	24	41	28	20	33	24	17	29	21	23	25	18	20	22	24	17	20	22	15
		7-20	Interior	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	35*	32*	35*	35*	27	35*	31*	23	35*	27	20	32*	24	18	29	21	23	25	19	21
			Exposed	35*	35*	35*	35*	35*	34*	35*	35*	31*	35*	35*	28	35*	34*	25	35*	31*	23	35*	28	21	33*	24	18	28	20	23	24	18	20	21	23	17	19	21	15	25	18	14
		20-27	Interior	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	37	43*	39*	32	43*	34	28	43*	30	25
			Exposed	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	43*	42*	43*	43*	38*	43*	39*	32	43*	34	28	43*	29	24	43*	25	21	38*	22	19	34	20	16			
		27-45	Interior	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	34	41*	38*	30			
			Exposed	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	41*	39*	41*	41*	33	41*	37*	29	36*	32	25	31	28	22	28	25	20
	D	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	43	46	46	37	46	46	33	46	46	30	46	36	26	46	31	22	37	27	19	32	23	25	28	21	22	25	18	20
			Exposed	46	46	37	46	46	32	46	44	29	46	38	26	46	34	24	45	31	22	40	28	20	32	24	25	28	20	22	24	17	19	21	23	16	18	20	14	25	18	13
		7-20	Interior	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	38*	35*	38*	38*	32	38*	38*	29	38*	37*	27	38*	31	23	36*	26	19	31	23	25	27	20	22	24	17	20	21	23	17
			Exposed	38*	38*	32	38*	38*	28	38*	35*	26	38*	31	23	38*	28	21	35*	26	19	32	24	17	27	20	22	23	17	19	20	22	17	18	20	15	24	17	13	21	15	11
		20-27	Interior	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	48*	41	48*	43*	35	48*	37	31	48*	32	27	48*	28	24	43*	25	21
			Exposed	48*	48*	48*	48*	48*	48*	48*	48*	47*	48*	48*	42*	48*	46*	38	48*	42*	35	48*	39	32	48*	33	27	48*	33	24	41	24	20	36	21	16	32	19	15	28	17	14
		27-45	Interior	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	37	45*	41*	32	40*	36	28	35	32	25
			Exposed	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	46*	42*	46*	46*	38	46*	41*	32	39	35	28	34	30	24	30	27	21	26	23	19	23	21	17

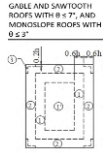
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

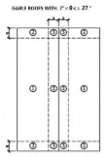
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

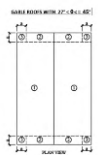
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

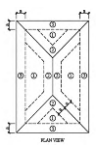












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

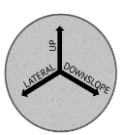
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

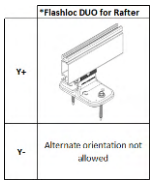
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	145	149	149	133	149	140	119	149	131	65	143	120	57	135	80	50	127	63	44
			Exposed	149	149	149	149	149	149	149	149	142	149	149	134	149	146	128	149	139	109	149	133	74	144	123	57	133	76	49	125	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	134	149	145	72	149	133	57	149	85	50	139	60	44	129	53	39
			Exposed	149	149	149	149	149	149	149	149	145	149	149	136	149	149	128	149	144	66	149	136	60	149	124	51	138	59	43	126	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	139	150	142	128	150	150	131	60	150	64	53	142	57	47
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	150	138	150	146	131	150	132	61	150	63	52	138	55	45	129	48	40	98	42	35	64	38	31
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	147	151	148	136	151	138	126	151	129	64	140	99	57
			Exposed	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	137	79	54	126	60	48	59	53	42	52	47	37
	C	0-7	Interior	149	149	149	149	149	149	149	149	146	149	149	138	149	149	131	149	143	125	149	137	92	148	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	149	149	131	149	141	124	149	134	77	149	128	62	143	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	149	149	149	149	149	149	149	149	149	149	149	141	149	149	132	149	149	126	149	141	63	149	128	53	142	62	46	130	54	40	64	47	35	56	41	31	50	37	41
			Exposed	149	149	132	149	147	86	149	137	61	149	129	55	149	78	50	141	61	45	134	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	143	150	150	135	150	136	65	150	81	55	142	58	48	133	51	42	125	45	37	73	40	33
			Exposed	150	150	150	150	150	141	150	147	132	150	138	72	150	130	60	150	71	55	146	60	50	133	51	42	123	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	146	151	151	143	151	143	131	151	132	71	141	109	57	130	63	50	62	56	44	55	50	39
			Exposed	151	151	151	151	151	149	151	151	140	151	144	132	151	137	125	151	131	66	145	125	60	131	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39
	D	0-7	Interior	149	149	149	149	149	140	149	149	132	149	144	126	149	137	91	149	131	65	147	126	60	135	82	50	126	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	149	137	90	149	129	64	144	123	57	137	87	52	131	67	47	125	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	149	149	149	149	149	143	149	149	134	149	149	126	149	141	63	149	133	58	149	127	53	140	60	45	128	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	149	141	63	149	131	56	149	124	50	142	62	46	134	56	41	127	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	150	150	150	150	150	150	150	150	150	150	150	144	150	150	135	150	143	128	150	135	64	150	65	54	140	56	46	130	48	40	97	42	35	63	37	31	56	33	41
			Exposed	150	150	135	150	140	126	150	132	61	150	76	55	146	60	50	139	55	46	132	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	143	151	148	136	151	141	130	151	130	65	138	86	55	127	60	48	59	53	42	52	47	37
			Exposed	151	151	143	151	146	134	151	138	127	151	131	69	145	125	60	137	81	55	130	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33
10	B	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	138	139	139	131	139	139	125	139	137	92	139	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	139	139	131	139	139	124	139	134	77	139	128	62	139	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	134	140	140	72	140	133	57	140	85	50	139	60	44	129	53	39
			Exposed	140	140	140	140	140	140	140	140	140	140	140	136	140	140	128	140	140	66	140	136	60	140	124	51	138	59	43	126	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	142	128	146	131	60	146	64	53	142	57	47
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	138	146	146	131	146	132	61	146	63	52	138	55	45	129	48	40	98	42	35	64	38	31
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	148	136	150	138	126	150	129	64	140	99	57
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	139	150	138	127	150	128	63	137	79	54	126	60	48	59	53	42	52	47	37
	C	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	138	139	139	131	139	139	125	139	137	92	139	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	139	139	131	139	139	124	139	134	77	139	128	62	139	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	132	140	140	63	140	128	53	140	62	46	130	54	40	64	47	35	56	41	31	50	37	41
			Exposed	140	140	132	140	140	86	140	137	61	140	129	55	140	78	50	140	61	45	134	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	135	146	136	65	146	81	55	142	58	48	133	51	42	125	45	37	73	40	33
			Exposed	146	146	146	146	146	141	146	146	132	146	138	72	146	130	60	146	71	55	146	60	50	133	51	42	123	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	143	150	143	131	150	132	71	141	109	57	130	63	50	62	56	44	55	50	39
			Exposed	150	150	150	150	150	149	150	150	140	150	144	132	150	137	125	150	131	66	145	125	60	131	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39
	D	0-7	Interior	139	139	139	139	139	139	139	139	139	139	139	138	139	139	131	139	139	125	139	137	92	139	126	61	137	89	52	128	63	45	101	55	39	70	49	35	59	43	46
			Exposed	139	139	131	139	139	124	139	134	77	139	128	62	139	116	56	136	86	51	131	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	134	140	140	72	140	133	57	140	85	50	139	60	44	129	53	39
			Exposed	140	140	140	140	140	140	140	140	140	140	140	136	140	140	128	140	140	66	140	136	60	140	124	51	138	59	43	126	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	142	128	146	131	60	146	64	53	142	57	47
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	138	146	146	131	146	132	61	146	63	52	138	55	45	129	48	40	98	42	35	64	38	31
		27-45	Interior	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	147	150	148	136	150	138	126	150	129	64	140	99	57
			Exposed	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	146	150	150	139	150	138	127	150	128	63	137	79	54	126	60	48	59	53	42	52	47	37
20	B	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	119	126	126	65	126	120	57	126	80	50	126	63	44
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	109	126	126	74	126	123	57	126	76	49	125	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	72	127	127	57	127	85	50	127	60	44	127	53	39
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	66	127	127	60	127	124	51	127	59	43	126	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	128	135	131	60	135	64	53	135	57	47
			Exposed	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	131	135	132	61	135	63	52	135	55	45	129	48	40	98	42	35	64	38	31			
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	136	140	138	126	140	129	64	139	99	57
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	C	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	125	126	126	92	126	126	61	126	89	52	126	63	45	101	55	39	70	49	35	59	43	46
			Exposed	126	126	126	126	126	124	126	126	77	126	126	62	126	116	56	126	86	51	126	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
			Exposed	127	127	127	127	127	86	127	127	61	127	127	55	127	78	50	127	61	45	127	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
			Exposed	135	135	135	135	135	135	135	135	132	135	135	72	135	130	60	135	71	55	135	60	50	133	51	42	123	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
			Exposed	140	140	140	140	140	140	140	140	140	140	140	132	140	140	132	140	140	125	140	131	66	140	125	60	131	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39
	D	0-7	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	91	126	126	65	126	126	60	126	82	50	126	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	126	126	90	126	126	64	126	123	57	126	87	52	126	67	47	125	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	127	127	127	127	127	127	127	127	127	127	127	126	127	127	63	127	127	58	127	127	53	127	60	45	127	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	127	127	63	127	127	56	127	124	50	127	62	46	127	56	41	127	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	135	137	137	128	137	135	64	137	65	54	137	56	46	130	48	40	97	42	35	63	37	31	56	33	41
			Exposed	137	137	135	137	137	126	137	132	61	137	76	55	137	60	50	137	55	46	132	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142	136	142	141	130	142	130	65	138	86	55	127	60	48	59	53	42	52	47	37	46	41	33
			Exposed	142	142	142	142	142	134	142	138	127	142	131	69	142	125	60	137	81	55	130	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33

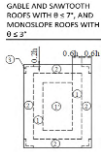
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

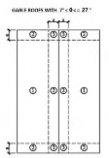
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

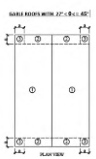
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

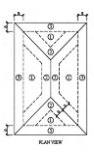












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

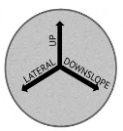
Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

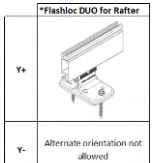
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	57	117	117	80	50	117	63	44
			Exposed	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	109	117	117	74	117	117	57	117	76	49	117	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	72	118	118	57	118	85	50	118	60	44	118	53	39
			Exposed	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	66	118	118	60	118	118	51	118	59	43	118	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	60	127	64	53	127	57	47
			Exposed	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	61	127	63	52	127	55	45	127	48	40	98	42	35	64	38	31
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	64	122	99	57
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	64	122	99	57
	C	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	92	117	117	61	117	89	52	117	63	45	101	55	39	70	49	35	59	43	46
			Exposed	117	117	117	117	117	117	117	117	77	117	117	62	117	116	56	117	86	51	117	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	41
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	63	118	118	53	118	62	46	118	54	40	64	47	35	56	41	31	50	37	41
			Exposed	118	118	118	118	118	86	118	118	61	118	118	55	118	78	50	118	61	45	118	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	65	127	81	55	127	58	48	127	51	42	125	45	37	73	40	33
			Exposed	127	127	127	127	127	127	127	127	127	72	127	127	127	127	127	127	127	60	127	71	55	127	60	50	127	51	42	123	44	36	65	38	31	56	33	42	50	44	37
		27-45	Interior	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	71	122	109	57	122	63	50	62	56	44	55	50	39
			Exposed	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	66	122	122	60	122	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	30
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	91	117	117	65	117	117	60	117	82	50	117	61	43	87	53	37	63	46	33	56	41	44	49	36	39			
			Exposed	117	117	90	117	117	64	117	117	57	117	87	52	117	67	47	117	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	63	118	118	58	118	118	53	118	60	45	118	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	118	118	63	118	118	56	118	118	50	118	62	46	118	56	41	118	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	128	129	129	64	129	65	54	129	56	46	129	48	40	97	42	35	63	37	31	56	33	41
			Exposed	129	129	129	129	129	126	129	129	61	129	76	55	129	60	50	129	55	46	129	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	65	127	86	55	127	60	48	59	53	42	86	56	44	59	53	42
			Exposed	127	127	127	127	127	127	127	127	127	69	127	125	60	127	81	55	127	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33		
40	B	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	57	115	80	50	115	63	44
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	74	115	115	57	115	85	57	115	76	49	115	60	43
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	72	115	115	57	115	85	50	115	60	44	115	53	39
			Exposed	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	66	115	115	60	115	115	51	115	59	43	115	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	60	113*	64	53	113*	57	47
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	61	113*	63	52	113*	55	45	113*	48	40	98	42	35	64	38	31
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	64	109*	104*	57
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	64	109*	104*	57
	C	0-7	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	92	115	115	61	115	89	52	115	63	45	101	55	39	70	49	35	59	43	46
			Exposed	115	115	115	115	115	115	115	115	77	115	115	62	115	115	56	115	86	51	115	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	35
		7-20	Interior	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	63	115	115	53	115	62	46	115	54	40	64	47	35	56	41	31	50	37	41
			Exposed	115	115	115	115	115	86	115	115	61	115	115	55	115	78	50	115	61	45	115	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	113*	65	113*	81	55	113*	58	48	113*	51	42	113*	45	37	73	40	33
			Exposed	113*	113*	113*	113*	113*	113*	113*	113*	113*	72	113*	113*	60	113*	71	55	113*	60	50	113*	51	42	113*	44	36	65	38	31	56	33	42	50	44	37	44	39	33		
		27-45	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
			Exposed	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*
	D	0-7	Interior	117	117	117	117	117	117	117	117	117	117	117	91	117	117	65	117	117	60	117	82	50	117	61	43	87	53	37	63	46	33	56	41	44	49	36	39			
			Exposed	117	117	90	117	117	64	117	117	57	117	87	52	117	67	47	117	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	117	117	117	117	117	117	117	117	117	117	117	117	117	117	63	117	117	58	117	117	53	117	60	45	117	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	117	117	63	117	117	56	117	117	50	117	62	46	117	56	41	117	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	64	118	65	54	118	56	46	118	48	40	97	42	35	63	37	31	56	33	41
			Exposed	118	118	118	118	118	118	118	118	61	118	76	55	118	60	50	118	55	46	118	50	42	104	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	65	114*	86	55	114*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	114*	69	114*	114*	60	114*	81	55	114*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33
50	B	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	65	107	107	57	107	80	50	107	63	44
			Exposed	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	74	107	107	57	107	76	49	107	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	72	112*	112*	57	112*	85	50	112*	60	44	112*	53	39
			Exposed	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	66	112*	112*	60	112*	112*	51	112*	59	43	112*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	64	102*	57	47
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	61	102*	63	52	102*	55	45	102*	48	40	98*	42	35	64	38	31
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	64	99*	99*	57
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	63	99*	79	54	99*	60	48	59	53	42	52	47	37
	C	0-7	Interior	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	92	107	107	61	107	89	52	107	63	45	101	55	39	70	49	35	59	43	46
			Exposed	107	107	107	107	107	107	107	107	77	107	107	62	107	107	56	107	86	51	107	68	47	105	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	112*	63	112*	112*	53	112*	62	46	112*	54	40	64	47	35	56	41	31	50	37	41
			Exposed	112*	112*	112*	112*	112*	86	112*	112*	61	112*	112*	55	112*	78	50	112*	61	45	112*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	102*	65	102*	81	55	102*	58	48	102*	51	42	102*	45	37	73	40	33
			Exposed	102*	102*	102*	102*	102*	102*	102*	102*	102*	72	102*	102*	60	102*	71	55	102*	60	50	102*	51	42	102*	44	36	65	38	31	56	33	42	50	44	37	44	39	33		
		27-45	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	71	99*	99*	57	99*	63	50	62	56	44	55	50	39
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	66	99*	99*	60	99*	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	30
	D	0-7	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	91	111	111	65	111	111	60	111	82	50	111	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	111	111	90	111	111	64	111	111	57	111	87	52	111	67	47	111	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	63	111	111	58	111	111	53	111	60	45	111	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	111	111	63	111	111	56	111	111	50	111	62	46	111	56	41	111	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	107*	64	107*	65	54	107*	56	46	107*	48	40	97	42	35	63	37	31	56	33	41
			Exposed	107*	107*	107*	107*	107*	107*	107*	107*	107*	76	107*	107*	60	107*	107*	55	107*	46	107*	50	42	104*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	65	104*	86	55	104*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	104*	69	104*	104*	60	104*	81	55	104*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33

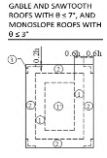
* Cells with an astriks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

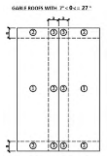
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

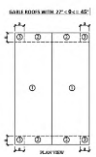
30 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

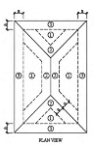












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

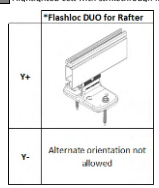
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
			Exposed	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	74	98	98	57	98	76	49	98	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	57	103*	85	50	103*	60	44	103*	53	39	103*	53	39
			Exposed	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	66	103*	103*	60	103*	103*	51	103*	59	43	103*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	60	91*	64	53	91*	57	47
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	61	91*	63	52	91*	55	45	91*	48	40	91*	42	35	64	38	31
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	64	86*	64	53	86*	57	37
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	80*	54	86*	60	48	59	53	42	52	47	37
	C	0-7	Interior	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	92	98	98	61	98	89	52	98	63	45	98	55	39	70	49	35	59	43	46
			Exposed	98	98	98	98	98	98	98	98	77	98	98	62	98	98	56	98	86	51	98	68	47	98	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	103*	63	103*	103*	53	103*	62	46	103*	54	40	64	47	35	56	41	31	50	37	41
			Exposed	103*	103*	103*	103*	103*	103*	86	103*	103*	61	103*	103*	55	103*	78	50	103*	61	45	103*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	91*	65	91*	81*	55	91*	58	48	91*	51	42	91*	45	37	73	40	33
			Exposed	91*	91*	91*	91*	91*	91*	91*	91*	91*	72	91*	91*	60	91*	71	55	91*	60	50	91*	51	42	91*	44	36	65	38	31	56	33	42	91*	44	36	44	39	33			
		27-45	Interior	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	71	86*	86*	57	86*	63	50	62	56	44	55	50	39			
			Exposed	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	86*	66	86*	86*	60	86*	64	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39		
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	91	103	103	65	103	103	60	103	82	50	103	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	103	103	90	103	103	64	103	103	57	103	87	52	103	67	47	103	60	43	99	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	109*	63	109*	109*	58	109*	109*	53	109*	60	45	109*	52	38	61	45	33	53	39	44	47	34	39
			Exposed	109*	109*	63	109*	109*	56	109*	109*	50	109*	62	46	109*	56	41	109*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	99*	64	99*	99*	65	99*	48	40	97*	42	35	63	37	31	56	33	41			
			Exposed	99*	99*	99*	99*	99*	99*	99*	99*	61	99*	76	55	99*	60	50	99*	55	46	99*	50	42	99*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	65	94*	86*	55	94*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	94*	69	94*	94*	60	94*	82*	55	94*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33
70	B	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
			Exposed	91	91	91	91	91	91	91	91	91	91	91	62	91	91	56	91	86	51	91	68	47	91	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	72	95*	95*	57	95*	85*	50	95*	60	44	95*	53	39
			Exposed	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	66	95*	95*	60	95*	95*	51	95*	59	43	95*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	60	79*	64	53	79*	57	47
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	61	79*	63	52	79*	55	45	79*	48	40	79*	42	35	64	38	31
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	64*	75*	75*	57	75*	64*	47
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	75*	54	75*	60	48	59	53	42
	C	0-7	Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	61	91	89	52	91	63	45	91	55	39	70	49	35	59	43	46
			Exposed	91	91	91	91	91	91	91	91	77	91	91	62	91	91	56	91	86	51	91	68	47	91	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	95*	63	95*	62	46	95*	54	40
			Exposed	95*	95*	95*	95*	95*	86*	95*	95*	61	95*	95*	55	95*	78	50	95*	61	45	95*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	55	79*	58	48
			Exposed	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	79*	72*	79*	79*	60	79*	71*	55	79*	60	50	79*	51	42	79*	44	36	65	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	60	75*	64*	50
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	67*	75*	75*	60	75*	64*	51	61	55	44	53	48	38	46	42	33	41	37	44	36	33	39
	D	0-7	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	91	96	96	65	96	96	60	96	82	50	96	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	96	96	90	96	96	64	96	96	57	96	87	52	96	67	47	96	60	43	96	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	101*	63	101*	101*	58	101*	101*	53	101*	60	45	101*	52	38	61	45	33	53	39	44	47	34	34
			Exposed	101*	101*	63	101*	101*	56	101*	101*	50	101*	62	46	101*	56	41	101*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	87*	64	87*	65	54	87*	56	46	87*	48	40	87*	42	35	63	37	31	56	33	41
			Exposed	87*	87*	87*	87*	87*	87*	87*	87*	61	87*	76*	55	87*	60	50	87*	55	46	87*	50	42	87*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	65	82*	82*	55	82*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	82*	71*	82*	82*	60	82*	81*	55	82*	63	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33
80	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	65	86	86	57	86	80	50	86	63	44
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	57	86	76	49	86	60	43	85	52	37	63	46	33	56	41	44
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	72*	84*	84*	57	84*	84*	50	84*	60	44	84*	53	39
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	66	84*	84*	60	84*	84*	51	84*	59	43	84*	51	38	61	44	33	53	39	44	47	35	30
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	61*	70*	63*	52	70*	48	40
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	55	45	70*	48	40	70*	42	35	64*	38	31
		27-45	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	57*
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	63*	66*	66*	54	66*	60*	48	59*	53	42	52	47	37
	C	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	61	86	86	52	86	63	45	86	55	39	70	49	35	59	43	46
			Exposed	86	86	86	86	86	86	86	86	77	86	86	62	86	86	56	86	86	51	86	68	47	86	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	51
		7-20	Interior	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	84*	63	84*	62	46	84*	54	40
			Exposed	84*	84*	84*	84*	84*	84*	84*	84*	61	84*	84*	55	84*	78*	50	84*	61	45	84*	56	41	65	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	55	70*	58	48
			Exposed	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	70*	50	70*	51	42	70*	44	36	65*	38	31	56	33	42	50	44	37	44	39	33
		27-45	Interior	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	39
			Exposed	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	66*	60*	66*	64*	51	61*	55	44	53	48	38	46	42	33	41	37	44	36	33	39
	D	0-7	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	65	90	90	60	90	82	50	90	61	43	87	53	37	63	46	33	56	41	44	49	36	39
			Exposed	90	90	90	90	90	64	90	90	57	90	87	52	90	67	47	90	60	43	90	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	63	93*	93*	58	93*	93*	53	93*	60	45	93*	52	38	61	45	33	53	39	44	47	34	34
			Exposed	93*	93*	63	93*	93*	56	93*	93*	50	93*	62	46	93*	56	41	93*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	77*	64	77*	65	54	77*	56	46	77*	48	40	77*	42	35	63	37	31	56	33	41
			Exposed	77*	77*	77*	77*	77*	77*	77*	77*	61	77*	76*	55	77*	60	50	77*	55	46	77*	50	42	77*	43	35	62	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	65*	73*	73*	55	73*	60	48	59	53	42	52	47	37	46	41	33
			Exposed	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	73*	69*	73*	73*	60	73*	73*	55	73*	73*	63*	50	60	53	42	51	46	36	44	40	32	39	35	42	34	31	37	30	41	33

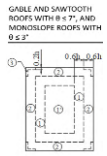
Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

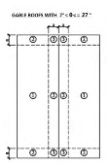
Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

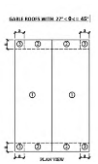
Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

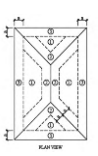












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4

UNIRAC®

ASCE 7-22	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	SM	CROSS-SLOPE	UAF	Flashloc DUO Rafter
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Type	Rail Direction	Clamp	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

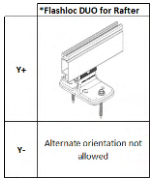
Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	57	81	81	80	50	81	63	44
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	74	81	81	57	81	76	49	81	60	43	81	52	37	63	46	33	56	41	44
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	72*	75*	75*	57	75*	75*	57	75*	75*	50	75*	60	44	75*	53	39			
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	66*	75*	75*	60	75*	75*	51	75*	59	43	75*	51	38	61	44	33	53	39	44	47	35	39
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	56
	C	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	61	81	81	52	81	63	45	81	55	39	70	49	35	59	43	46
			Exposed	81	81	81	81	81	81	81	81	77	81	81	62	81	81	56	81	81	51	81	68	47	81	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	75*	53	75*	62	46	75*	54	40	64	47	35	56	41	31	50	37	41
			Exposed	75*	75*	75*	75*	75*	75*	75*	75*	61	75*	75*	55	75*	75*	50	75*	61	45	75*	56	41	65*	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	63	93*	87*	56	93*	60	50
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	64	93*	71	55	93*	57	48	93*	50	42	93*	44	37	70	39	33
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	76*	89*	89*	59
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	68	89*	89*	57	89*	63	50	62	55	44	55	49	39			
	D	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	65	85	85	60	85	82	50	85	61	43	85	53	37	63	46	33	56	41	44	49	36	39
			Exposed	85	85	85	85	85	64	85	85	57	85	85	52	85	67	47	85	60	43	85	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	83*	63	83*	83*	58	83*	83*	53	83*	60	45	83*	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	83*	83*	63	83*	83*	56	83*	83*	50	83*	62	46	83*	56	41	83*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	69*	64*	69*	65*	54	69*	56	46	69*	48	40	69*	42	35	63*	37	31	56	33	41
			Exposed	69*	69*	69*	69*	69*	69*	69*	69*	61*	69*	69*	55	69*	60*	50	69*	55	46	69*	50	42	69*	43	35	62*	37	30	54	32	40	47	42	35	42	37	31	37	33	27
		27-45	Interior	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	64	98*	90*	56	98*	63	50
			Exposed	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	98*	64	98*	83	55	98*	60	48	59	53	42	52	46	37	46	41	33
100	B	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	77	77	57	77	77	57	77	77	65	77	77	57	77	77	50	77	63	44
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	57	77	76	49	77	60	43	77	57	37	63	46	33	56	41	44
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	57	68*	68*	50	68*	60*	44	68*	53	39
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	51	68*	59*	43	68*	51	38	61*	44	33	53	39	44	47	35	39
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	60	85*	64	53	85*	57	47
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	56
	C	0-7	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	61	77	77	52	77	63	45	77	55	39	70	49	35	59	43	46
			Exposed	77	77	77	77	77	77	77	77	77	77	77	62	77	77	56	77	77	51	77	68	47	77	56	40	67	48	34	57	42	44	50	36	39	44	32	34	39	43	31
		7-20	Interior	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	68*	63*	68*	68*	53	68*	62*	46	68*	54	40	64*	47	35	56	41	31	50	37	41
			Exposed	68*	68*	68*	68*	68*	68*	68*	68*	61*	68*	68*	55	68*	68*	50	68*	61*	45	68*	56	41	65*	47	35	55	41	30	48	35	39	42	31	34	37	41	30	33	36	27
		20-27	Interior	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	63	85*	85*	56	85*	60	50
			Exposed	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	85*	64	85*	71	55	85*	57	48	85*	50	42	85*	44	37	70	39	33
		27-45	Interior	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	74*	80*	80*	59
			Exposed	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	80*	69*	80*	80*	57	80*	63	50	62	55	44	55	49	39
	D	0-7	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	65	81	81	60	81	81	50	81	61	43	81	53	37	63	46	33	56	41	44	49	36	39
			Exposed	81	81	81	81	81	64	81	81	57	81	81	52	81	67	47	81	60	43	81	55	39	64	47	33	55	40	43	47	35	37	41	46	33	37	40	29	32	36	26
		7-20	Interior	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	75*	63	75*	75*	58	75*	75*	53	75*	60	45	75*	52	38	61	45	33	53	39	44	47	34	39	42	31	34
			Exposed	75*	75*	63	75*	75*	56	75*	75*	50	75*	62	46	75*	56	41	75*	51	38	64	47	35	54	39	44	46	34	38	40	44	33	35	39	29	31	34	25	41	30	23
		20-27	Interior	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	60	93*	64	53	93*	56	47	93*	50	41
			Exposed	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	93*	63	93*	64	53	93*	55	46	93*	48	40	90*	42	35	63	37	31	56	33	27
		27-45	Interior	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	63	89*	88*	56	89*	63	50			
			Exposed	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	89*	64	89*	82*	55	89*	60	48	59	53	42	52	46	37	46	41	33

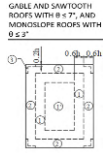
* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

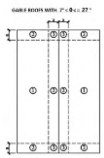
10 Highlighted cell indicate 3-rail system span. Contact Unirac Engineering Services for support.

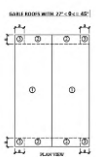
10 Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

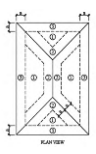












**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (18.66sq.ft) and 80in x 41in (22.78sq.ft) are based on ASCE 7-22, Section 29.4.4