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: 30 ft
- Roof Pitch: 0°-45°
- Site Elevation: 0 ft

Wind Design Assumptions

- Wind loads used are based on ASCE 7-22 Sec. 29.4.4
- 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, γE = 1.5 for 'Exposed' spans (ASCE 7-22, Fig. 29.4-7)

Snow Design Assumptions

- Ground Snow Load = 0-100 psf
- Exposure Factor coefficients of Partially Exposed condition
- Thermal Factor = 1.0
- Results based on uniform snow load

Seismic Design Assumptions

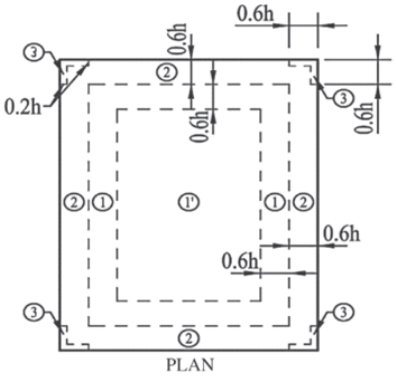
- 0.2-s Spectral Response Acceleration
- S_S = 1.25 and 3 with Sds = 1, 2.4 respectively per criteria shown on individual span tables sheets.
- S_1 = 0.5 & Sd1 = 0.6
- Seismic site class D

Array Assumptions

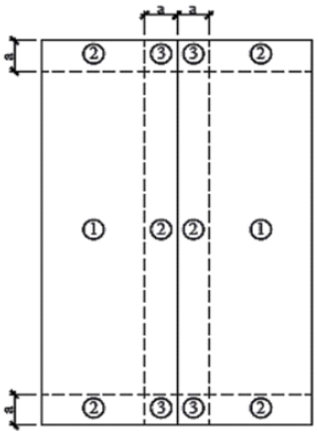
- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1" x 67" (~19 sq.ft, 47.65 lbs) and 41" x 80" (~23 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at 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.
- The most restrictive of all roof zone spans shall be used when any part of the module is attributed to that span.
- '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.

Span Tables

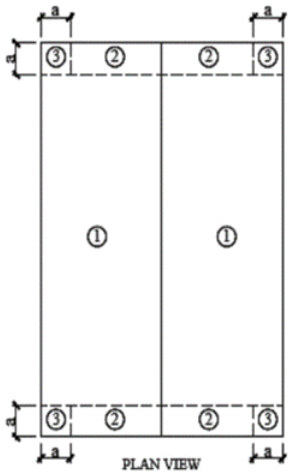
Zone should be considered as per ASCE 7-22, Fig. 30.3-2A to 30.3-2D



Gable Roofs θ ≤ 7°

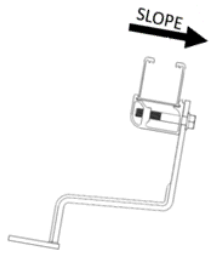


Gable Roofs 7°< θ ≤ 27°



Gable Roofs 27°< θ ≤ 45°

Rails can be installed in these possible orientations.

	*CT1
Y+	Alternate orientation not allowed
Y-	

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	86	86	86	86	86	84	86	86	80	86	86	77	86	84	71	86	81	60	86	78	52	83	68	41	78	53	35	70	43	30	56	37	26	46	33	23	40	29	21
			Exposed	86	84	70	86	80	58	86	77	49	84	70	42	81	60	38	78	52	34	75	46	31	57	38	27	45	32	23	38	28	20	33	24	17	29	21	23	26	19	20
		7-20	Interior	86	86	86	86	86	81	86	86	78	86	85	73	86	81	60	86	78	50	86	75	43	80	54	36	75	42	31	56	36	27	44	31	23	38	28	20	34	25	18
			Exposed	86	81	59	86	77	48	85	69	41	81	57	37	78	47	33	73	41	30	61	38	28	44	32	23	37	27	20	32	23	17	28	21	23	25	18	20	22	16	18
		20-27	Interior	87	87	87	87	87	87	87	87	85	87	87	81	87	84	78	87	81	74	87	78	61	87	64	44	83	47	37	78	39	32	72	34	28	58	30	25	47	27	22
			Exposed	87	84	78	87	80	70	87	76	56	87	67	46	86	55	40	83	46	37	80	41	34	73	34	28	56	29	24	44	25	21	38	22	18	33	20	16	30	17	22
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	86	87	87	83	87	87	80	87	84	77	84	78	61	78	68	46	69	53	39	53	43	34	42	38	30	37	33	26
			Exposed	87	87	83	87	86	79	87	82	75	84	79	63	81	76	53	78	67	45	75	57	40	54	43	34	41	37	29	36	32	25	31	28	22	27	25	19	24	22	17
	C	0-7	Interior	86	86	76	86	82	64	86	79	53	86	75	45	82	66	40	79	57	36	77	50	33	63	40	28	49	34	24	41	29	21	35	26	18	31	23	16	28	20	22
			Exposed	82	65	40	79	55	36	75	47	32	65	41	29	56	37	26	48	34	24	42	31	22	36	26	18	31	22	16	26	19	21	23	17	18	20	22	16	18	20	~~14~~
		7-20	Interior	86	83	66	86	79	53	86	75	44	83	63	39	79	52	35	76	44	32	68	40	29	49	34	25	39	29	21	34	25	18	30	22	16	26	19	21	23	17	19
			Exposed	79	52	35	76	42	31	63	38	28	51	34	25	43	31	23	39	28	21	36	26	19	30	22	16	26	19	21	22	16	18	19	22	16	17	19	~~14~~	23	17	~~12~~
		20-27	Interior	87	86	79	87	82	76	87	78	63	87	75	51	87	61	43	85	51	39	82	43	35	76	36	30	61	31	26	48	27	22	40	23	19	35	21	17	31	18	23
			Exposed	87	61	42	84	49	38	80	41	34	77	37	31	71	34	28	60	31	25	52	28	23	41	24	20	35	20	17	30	18	22	26	15	19	23	21	17	20	18	~~15~~
		27-45	Interior	87	87	84	87	87	81	87	84	77	86	81	71	83	77	59	80	74	50	77	63	43	60	47	36	44	39	31	38	34	27	33	29	23	29	26	21	26	23	18
			Exposed	83	77	58	79	70	48	75	58	41	63	49	37	52	42	33	43	38	30	39	35	28	33	30	24	28	26	20	25	22	18	22	19	15	19	17	20	17	23	18
	D	0-7	Interior	86	80	57	86	76	47	83	67	41	80	57	37	77	50	33	70	43	30	61	39	28	47	33	23	39	28	20	34	25	17	29	21	23	26	19	20	23	17	18
			Exposed	76	49	33	68	42	30	57	38	27	49	34	24	42	31	22	38	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	23	17	~~12~~
		7-20	Interior	86	77	47	84	67	40	80	54	36	77	45	32	68	40	29	57	36	27	48	33	24	38	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	68	40	29	54	35	26	44	32	23	39	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	87	80	68	87	76	54	87	63	44	85	52	39	82	43	35	79	39	32	76	36	30	59	30	25	45	26	21	38	22	18	33	20	16	29	17	22	26	15	19
			Exposed	81	43	35	78	38	31	73	34	28	61	31	26	52	28	23	44	26	21	40	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	87	85	78	87	81	74	84	78	61	80	75	50	77	63	43	70	54	39	58	46	35	42	38	30	36	32	26	31	28	22	27	25	19	24	22	17	21	19	23
			Exposed	77	62	42	66	51	38	53	43	34	44	39	31	39	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
10	B	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	60	71	71	52	71	68	41	71	53	35	70	43	30	56	37	26	46	33	23	40	29	21
			Exposed	71	71	70	71	71	58	71	71	49	71	70	42	71	60	38	71	52	34	71	46	31	57	38	27	45	32	23	38	28	20	33	24	17	29	21	23	26	19	20
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	60	72	72	50	72	72	43	72	54	36	72	42	31	56	36	27	44	31	23	38	28	20	34	25	18
			Exposed	72	72	59	72	72	48	72	69	41	72	57	37	72	47	33	72	41	30	61	38	28	44	32	23	37	27	20	32	23	17	28	21	23	25	18	20	22	16	18
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	74	82	78	61	82	64	44	82	47	37	78	39	32	72	34	28	58	30	25	47	27	22
			Exposed	82	82	78	82	80	70	82	76	56	82	67	46	82	55	40	82	46	37	80	41	34	73	34	28	56	29	24	44	25	21	38	22	18	33	20	16	30	17	22
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	86	84	77	84	78	61	78	68	46	69	53	39	53	43	34	42	38	30	37	33	26
			Exposed	86	86	83	86	86	79	86	82	75	84	79	63	81	76	53	78	67	45	75	57	40	54	43	34	41	37	29	36	32	25	31	28	22	27	25	19	24	22	17
	C	0-7	Interior	71	71	71	71	71	64	71	71	53	71	71	45	71	66	40	71	57	36	71	50	33	63	40	28	49	34	24	41	29	21	35	26	18	31	23	16	28	20	22
			Exposed	71	65	40	71	55	36	71	47	32	65	41	29	56	37	26	48	34	24	42	31	22	36	26	18	31	22	16	26	19	21	23	17	18	20	22	16	18	20	~~14~~
		7-20	Interior	72	72	66	72	72	53	72	72	44	72	63	39	72	52	35	72	44	32	68	40	29	49	34	25	39	29	21	34	25	18	30	22	16	26	19	21	23	17	19
			Exposed	72	52	35	72	42	31	63	38	28	51	34	25	43	31	23	39	28	21	36	26	19	30	22	16	26	19	21	22	16	18	19	22	16	17	19	~~14~~	23	17	~~12~~
		20-27	Interior	82	82	79	82	82	76	82	78	63	82	75	51	82	61	43	82	51	39	82	43	35	76	36	30	61	31	26	48	27	22	40	23	19	35	21	17	31	18	23
			Exposed	82	61	42	82	49	38	80	41	34	77	37	31	71	34	28	60	31	25	52	28	23	41	24	20	35	20	17	30	18	22	26	15	19	23	21	17	20	18	~~15~~
		27-45	Interior	86	86	84	86	86	81	86	84	77	86	81	71	83	77	59	80	74	50	77	63	43	60	47	36	44	39	31	38	34	27	33	29	23	29	26	21	26	23	18
			Exposed	83	77	58	79	70	48	75	58	41	63	49	37	52	42	33	43	38	30	39	35	28	33	30	24	28	26	20	25	22	18	22	19	15	19	17	20	17	23	18
	D	0-7	Interior	71	71	57	71	71	47	71	67	41	71	57	37	71	50	33	70	43	30	61	39	28	47	33	23	39	28	20	34	25	17	29	21	23	26	19	20	23	17	18
			Exposed	71	49	33	68	42	30	57	38	27	49	34	24	42	31	22	38	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	23	17	~~12~~
		7-20	Interior	72	72	47	72	67	40	72	54	36	72	45	32	68	40	29	57	36	27	48	33	24	38	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	68	40	29	54	35	26	44	32	23	39	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	84	80	68	84	76	54	84	63	44	84	52	39	82	43	35	79	39	32	76	36	30	59	30	25	45	26	21	38	22	18	33	20	16	29	17	22	26	15	19
			Exposed	81	43	35	78	38	31	73	34	28	61	31	26	52	28	23	44	26	21	40	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	87	85	78	87	81	74	84	78	61	80	75	50	77	63	43	70	54	39	58	46	35	42	38	30	36	32	26	31	28	22	27	25	19	24	22	17	21	19	23
			Exposed	77	62	42	66	51	38	53	43	34	44	39	31	39	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
20	B	0-7	Interior	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	53	35	53	43	30	53	37	26	46	33	23	40	29	21
			Exposed	53	53	53	53	53	53	53	53	49	53	53	42	53	53	38	53	52	34	53	46	31	53	38	27	45	32	23	38	28	20	33	24	17	29	21	23	26	19	20
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	43	53	53	36	53	42	31	53	36	27	44	31	23	38	28	20	34	25	18
			Exposed	53	53	53	53	53	48	53	53	41	53	53	37	53	47	33	53	41	30	53	38	28	44	32	23	37	27	20	32	23	17	28	21	23	25	18	20	22	16	18
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	64	44	65	47	37	65	39	32	65	34	28	58	30	25	47	27	22
			Exposed	65	65	65	65	65	65	65	65	56	65	65	46	65	55	40	65	46	37	65	41	34	65	34	28	56	29	24	44	25	21	38	22	18	33	20	16	30	17	22
		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	61	72	68	46	66	53	39	53	43	34	42	38	30	37	33	26
			Exposed	72	72	72	72	72	72	72	72	72	72	72	63	72	72	53	72	67	45	72	57	40	54	43	34	41	37	29	36	32	25	31	28	22	27	25	19	24	22	17
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	45	53	53	40	53	53	36	53	50	33	53	40	28	49	34	24	41	29	21	35	26	18	31	23	16	28	20	22
			Exposed	53	53	40	53	53	36	53	47	32	53	41	29	53	37	26	48	34	24	42	31	22	36	26	18	31	22	16	26	19	21	23	17	18	20	22	16	18	20	~~14~~
		7-20	Interior	53	53	53	53	53	53	53	53	44	53	53	39	53	52	35	53	44	32	53	40	29	49	34	25	39	29	21	34	25	18	30	22	16	26	19	21	23	17	19
			Exposed	53	52	35	53	42	31	53	38	28	51	34	25	43	31	23	39	28	21	36	26	19	30	22	16	26	19	21	22	16	18	19	22	16	17	19	~~14~~	23	17	~~12~~
		20-27	Interior	65	65	65	65	65	65	65	65	63	65	65	51	65	61	43	65	51	39	65	43	35	65	36	30	61	31	26	48	27	22	40	23	19	35	21	17	31	18	23
			Exposed	65	61	42	65	49	38	65	41	34	65	37	31	65	34	28	60	31	25	52	28	23	41	24	20	35	20	17	30	18	22	26	15	19	23	21	17	20	18	~~15~~
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	59	72	72	50	70	63	43	60	47	36	44	39	31	38	34	27	33	29	23	29	26	21	26	23	18
			Exposed	72	72	58	72	70	48	72	58	41	63	49	37	52	42	33	43	38	30	39	35	28	33	30	24	28	26	20	25	22	18	22	19	15	19	17	20	17	23	18
	D	0-7	Interior	53	53	53	53	53	47	53	53	41	53	53	37	53	50	33	53	43	30	53	39	28	47	33	23	39	28	20	34	25	17	29	21	23	26	19	20	23	17	18
			Exposed	53	49	33	53	42	30	53	38	27	49	34	24	42	31	22	38	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	23	17	~~12~~
		7-20	Interior	53	53	47	53	53	40	53	53	36	53	45	32	53	40	29	53	36	27	48	33	24	38	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	53	40	29	53	35	26	44	32	23	39	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	68	68	68	68	68	54	68	63	44	68	52	39	68	43	35	68	39	32	68	36	30	59	30	25	45	26	21	38	22	18	33	20	16	29	17	22	26	15	19
			Exposed	68	43	35	68	38	31	68	34	28	61	31	26	52	28	23	44	26	21	40	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	75	75	75	75	75	74	75	75	61	75	75	50	73	63	43	69	54	39	58	46	35	42	38	30	36	32	26	31	28	22	27	25	19	24	22	17	21	19	23
			Exposed	75	62	42	66	51	38	53	43	34	44	39	31	39	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~

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

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	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CT1
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

*	Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.
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	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	102	102	102	102	102	102	102	102	98	102	102	93	102	102	89	102	99	85	102	94	81	102	87	75	94	81	59	88	76	51	83	63	44	78	55	39	71	49	35
			Exposed	102	102	89	102	97	84	102	93	80	102	88	76	98	84	64	94	81	58	90	78	53	83	63	45	78	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		7-20	Interior	102	102	102	102	102	101	102	102	95	102	102	90	102	100	85	102	95	81	102	91	78	99	83	60	91	77	52	84	61	45	78	53	39	64	47	35	57	41	31
			Exposed	102	100	85	102	94	80	102	89	76	100	84	62	95	80	56	90	76	51	86	63	47	79	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	103	87	79	103	80	62	95	67	54	89	57	47	84	50	42	79	45	37
			Exposed	103	103	95	103	99	89	103	93	84	103	88	80	103	84	76	102	80	62	97	76	56	90	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	103	93	103	95	85	96	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	103	103	102	103	103	96	103	101	91	103	96	86	100	91	82	95	87	79	91	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	102	102	91	102	100	86	102	95	82	102	91	78	101	87	73	96	83	61	92	80	56	85	70	47	80	57	41	74	50	35	59	43	31	52	38	27	46	34	36
			Exposed	101	86	72	95	82	60	90	78	54	86	75	48	83	62	44	79	57	40	76	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	24
		7-20	Interior	102	102	88	102	97	83	102	91	78	102	86	66	98	82	59	93	79	54	88	75	49	81	56	42	75	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	97	82	59	91	78	53	86	64	47	82	58	43	78	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	24	26	28	21
		20-27	Interior	103	103	98	103	102	92	103	96	87	103	91	82	103	86	78	103	82	65	100	78	60	92	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	103	86	78	103	81	64	98	77	57	93	62	52	89	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	98	90	81	94	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	103	94	84	97	89	80	91	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	102	97	83	102	92	79	102	87	75	97	83	62	92	80	56	88	77	51	85	67	47	79	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	92	80	56	87	76	50	83	63	45	79	57	40	76	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	25	29	32	22	38	28	20
		7-20	Interior	102	93	80	102	88	75	99	83	60	93	79	54	88	75	49	84	61	45	80	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	88	75	49	83	59	44	79	53	39	72	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	23	36	27	20	32	24	18
		20-27	Interior	103	98	88	103	92	83	103	87	79	103	82	72	100	78	60	95	71	54	91	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	100	78	59	94	64	53	89	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	24	29	26	21
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	93	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	94	81	95	87	75	94	81	59	88	76	51	83	63	44	78	55	39	71	49	35
			Exposed	95	95	89	95	95	84	95	93	80	95	88	76	95	84	64	94	81	58	90	78	53	83	63	45	78	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		7-20	Interior	96	96	96	96	96	96	96	96	95	96	96	90	96	96	85	96	95	81	96	91	78	96	83	60	91	77	52	84	61	45	78	53	39	64	47	35	57	41	31
			Exposed	96	96	85	96	94	80	96	89	76	96	84	62	95	80	56	90	76	51	86	63	47	79	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	90	100	95	86	100	87	79	100	80	62	95	67	54	89	57	47	84	50	42	79	45	37
			Exposed	100	100	95	100	99	89	100	93	84	100	88	80	100	84	76	100	80	62	97	76	56	90	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	95	85	96	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	102	102	102	102	102	96	102	101	91	102	96	86	100	91	82	95	87	79	91	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	95	95	91	95	95	86	95	95	82	95	91	78	95	87	73	95	83	61	92	80	56	85	70	47	80	57	41	74	50	35	59	43	31	52	38	27	46	34	36
			Exposed	95	86	72	95	82	60	90	78	54	86	75	48	83	62	44	79	57	40	76	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	24
		7-20	Interior	96	96	88	96	96	83	96	91	78	96	86	66	96	82	59	93	79	54	88	75	49	81	56	42	75	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	96	82	59	91	78	53	86	64	47	82	58	43	78	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	24	26	28	21
		20-27	Interior	100	100	98	100	100	92	100	96	87	100	91	82	100	86	78	100	82	65	100	78	60	92	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	100	86	78	100	81	64	98	77	57	93	62	52	89	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	98	90	81	94	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	102	94	84	97	89	80	91	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	95	95	83	95	92	79	95	87	75	95	83	62	92	80	56	88	77	51	85	67	47	79	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	92	80	56	87	76	50	83	63	45	79	57	40	76	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	25	29	32	22	38	28	20
		7-20	Interior	96	93	80	96	88	75	96	83	60	93	79	54	88	75	49	84	61	45	80	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	88	75	49	83	59	44	79	53	39	72	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	23	36	27	20	32	24	18
		20-27	Interior	101	98	88	101	92	83	101	87	79	101	82	72	100	78	60	95	71	54	91	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	100	78	59	94	64	53	89	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	24	29	26	21
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	93	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	75	86	81	59	86	76	51	83	63	44	78	55	39	71	49	35
			Exposed	86	86	86	86	86	84	86	86	80	86	86	76	86	84	64	86	81	58	86	78	53	83	63	45	78	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	83	60	86	77	52	84	61	45	78	53	39	64	47	35	57	41	31
			Exposed	86	86	85	86	86	80	86	86	76	86	84	62	86	80	56	86	76	51	86	63	47	79	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	92	86	92	87	79	92	80	62	92	67	54	89	57	47	84	50	42	79	45	37
			Exposed	92	92	92	92	92	89	92	92	84	92	88	80	92	84	76	92	80	62	92	76	56	90	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	95	85	96	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	96	96	96	96	96	96	96	96	91	96	96	86	96	91	82	95	87	79	91	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	86	86	86	86	86	86	86	86	82	86	86	78	86	86	73	86	83	61	86	80	56	85	70	47	80	57	41	74	50	35	59	43	31	52	38	27	46	34	36
			Exposed	86	86	72	86	82	60	86	78	54	86	75	48	83	62	44	79	57	40	76	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	24
		7-20	Interior	86	86	86	86	86	83	86	86	78	86	86	66	86	82	59	86	79	54	86	75	49	81	56	42	75	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	86	82	59	86	78	53	86	64	47	82	58	43	78	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	24	26	28	21
		20-27	Interior	92	92	92	92	92	92	92	92	87	92	91	82	92	86	78	92	82	65	92	78	60	92	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	92	86	78	92	81	64	92	77	57	92	62	52	89	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	96	96	96	96	96	96	96	96	94	96	96	89	96	94	85	96	90	81	94	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	96	94	84	96	89	80	91	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	86	86	83	86	86	79	86	86	75	86	83	62	86	80	56	86	77	51	85	67	47	79	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	86	80	56	86	76	50	83	63	45	79	57	40	76	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	25	29	32	22	38	28	20
		7-20	Interior	86	86	80	86	86	75	86	83	60	86	79	54	86	75	49	84	61	45	80	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	86	75	49	83	59	44	79	53	39	72	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	23	36	27	20	32	24	18
		20-27	Interior	94	94	88	94	92	83	94	87	79	94	82	72	94	78	60	94	71	54	91	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	94	78	59	94	64	53	89	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	24	29	26	21
		27-45	Interior	97	97	95	97	97	90	97	95	85	97	90	81	93	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	93	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26

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

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	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																													
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																							
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	70	70	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	63	44	70	55	39	70	49	35
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	58	70	70	53	70	63	45	70	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		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	60	71	71	52	71	61	45	71	53	39	64	47	35	57	41	31
			Exposed	71	71	71	71	71	71	71	71	71	71	71	62	71	71	56	71	71	51	71	63	47	71	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	79	87	80	62	87	67	54	87	57	47	84	50	42	79	45	37
			Exposed	87	87	87	87	87	87	87	87	84	87	87	80	87	84	76	87	80	62	87	76	56	87	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		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	85	90	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	90	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	61	70	70	56	70	70	47	70	57	41	70	50	35	59	43	31	52	38	27	46	34	36
			Exposed	70	70	70	70	70	60	70	70	54	70	70	48	70	62	44	70	57	40	70	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	~~24~~
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	66	71	71	59	71	71	54	71	71	49	71	56	42	69	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	71	71	59	71	71	53	71	64	47	71	58	43	71	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	~~24~~	26	28	~~21~~
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	82	87	86	78	87	82	65	87	78	60	87	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	87	86	78	87	81	64	87	77	57	87	62	52	87	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	90	90	84	90	89	80	90	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	62	70	70	56	70	70	51	70	67	47	70	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	70	70	56	70	70	50	70	63	45	70	57	40	70	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	~~25~~	29	32	~~22~~	38	28	~~20~~
		7-20	Interior	71	71	71	71	71	71	71	71	60	71	71	54	71	71	49	71	61	45	71	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	71	71	49	71	59	44	71	53	39	71	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	~~23~~	36	27	~~20~~	32	~~24~~	~~18~~
		20-27	Interior	88	88	88	88	88	83	88	87	79	88	82	72	88	78	60	88	71	54	88	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	88	78	59	88	64	53	88	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	~~24~~	29	26	~~21~~
		27-45	Interior	92	92	92	92	92	90	92	92	85	92	90	81	92	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	92	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
40	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	59	65	65	51	65	63	44	65	55	39	65	49	35
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	58	65	65	53	65	63	45	65	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		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	60	66	66	52	66	61	45	65	53	39	63	47	35	57	41	31
			Exposed	66	66	66	66	66	66	66	66	66	66	66	62	66	66	56	66	66	51	66	63	47	66	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		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	62	76	67	54	76	57	47	74	50	42	70	45	37
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	62	76	76	56	76	58	48	76	49	41	76	43	35	64	37	31	56	33	27	50	29	37
		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	85	86	86	79	82	82	65	76	76	57	70	63	50	62	56	44
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	65	56	65	65	47	65	57	41	65	50	35	59	43	31	52	38	27	46	34	36
			Exposed	65	65	65	65	65	60	65	65	54	65	65	48	65	62	44	65	57	40	65	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	~~24~~
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	59	66	66	54	66	66	49	66	56	42	63	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	66	66	59	66	66	53	66	64	47	66	58	43	66	52	39	66	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	~~24~~	26	28	~~21~~
		20-27	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	65	76	76	60	76	61	50	75	52	43	70	45	37	66	40	33	59	35	29	53	31	26
			Exposed	76	76	76	76	76	64	76	76	57	76	62	52	76	57	47	76	52	43	76	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	85	85	78	79	79	61	72	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	86	86	84	86	86	80	86	84	76	86	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	62	70	70	56	70	70	51	70	67	47	70	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	70	70	56	70	70	50	70	63	45	70	57	40	70	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	~~25~~	29	32	~~22~~	38	28	~~20~~
		7-20	Interior	71	71	71	71	71	71	71	71	60	71	71	54	71	71	49	71	61	45	71	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	71	71	49	71	59	44	71	53	39	71	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	~~23~~	36	27	~~20~~	32	~~24~~	~~18~~
		20-27	Interior	81	81	81	81	81	81	81	81	79	81	81	72	81	78	60	81	71	54	81	60	50	80	51	42	75	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	81	78	59	81	64	53	81	58	48	81	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	~~24~~	29	26	~~21~~
		27-45	Interior	88	88	88	88	88	88	88	88	85	88	88	81	87	86	77	86	82	65	84	79	60	76	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	88	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
50	B	0-7	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	51	56	56	44	56	55	39	56	49	35
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	45	56	54	38	56	47	33	56	41	29	50	36	26	44	32	34
		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	52	57	57	45	56	53	39	54	47	35	53	41	31
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	51	57	57	47	57	53	40	57	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		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	54	65	57	47	63	50	42	61	45	37
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	62	66	66	56	66	58	48	66	49	41	66	43	35	64	37	31	56	33	27	50	29	37
		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	75	75	75	70	70	65	65	65	57	62	62	50	59	56	44
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	77	77	57	75	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	47	56	56	41	56	50	35	56	43	31	52	38	27	46	34	36
			Exposed	56	56	56	56	56	56	56	56	54	56	56	48	56	56	44	56	56	40	56	52	37	56	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	~~24~~
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	57	56	42	55	48	36	53	42	31	50	37	27	44	32	36	39	29	32
			Exposed	57	57	57	57	57	53	57	57	47	57	57	43	57	52	39	57	48	35	57	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	~~24~~	26	28	~~21~~
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	66	66	60	66	61	50	63	52	43	61	45	37	58	40	33	56	35	29	53	31	26
			Exposed	66	66	66	66	66	64	66	66	57	66	62	52	66	57	47	66	52	43	66	47	39	66	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	73	73	73	68	68	61	63	63	52	59	57	45	55	50	39	49	44	35	43	39	31
			Exposed	77	77	77	77	77	77	77	77	76	77	77	62	77	77	56	76	65	51	73	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	56	61	61	51	61	61	47	61	56	39	61	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	61	61	56	61	61	50	61	61	45	61	57	40	61	52	37	61	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	~~25~~	29	32	~~22~~	38	28	~~20~~
		7-20	Interior	61	61	61	61	61	61	61	61	60	61	61	54	61	61	49	61	61	45	61	56	41	58	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	61	61	49	61	59	44	61	53	39	61	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	~~23~~	36	27	~~20~~	32	~~24~~	~~18~~
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	60	71	71	54	71	60	50	68	51	42	64	44	36	61	38	31	56	33	27	50	29	36	44	26	32
			Exposed	71	71	59	71	64	53	71	58	48	71	52	43	71	47	39	71	43	36	71	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	~~24~~	29	26	~~21~~
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	81	79	79	77	76	76	65	72	72	60	65	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	82	82	77	82	81	64	82	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26

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

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	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CT1
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

*	Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.
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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	74	74	74	74	74	74	74	74	74	74	74	71	74	74	59	74	74	51	74	74	44	74	57	34	74	44	29	58	36	25	47	31	22	39	27	19	33	24	17
			Exposed	74	74	59	74	74	49	74	69	41	74	59	35	74	50	32	73	44	29	63	38	26	48	31	22	38	27	19	32	23	16	28	20	22	25	18	19	22	16	17
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	61	74	74	50	74	74	42	74	63	36	74	45	30	63	35	26	47	30	22	36	26	19	32	23	17	28	20	15
			Exposed	74	74	50	74	73	40	74	58	34	74	47	31	74	40	28	61	34	25	51	31	23	37	26	20	31	23	17	27	20	22	23	17	19	21	15	17	18	20	~~15~~
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	62	75	75	51	75	53	37	75	39	31	75	33	27	60	28	23	48	25	21	40	22	18
			Exposed	75	75	75	75	75	59	75	70	47	75	56	39	75	46	34	75	39	31	75	34	28	61	29	24	47	25	20	37	21	18	32	19	15	28	16	20	25	22	18
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	70	76	75	51	76	57	39	58	44	32	44	36	28	35	31	25	31	28	22
			Exposed	76	76	76	76	76	76	76	76	65	76	76	53	76	66	44	75	56	38	63	48	34	45	36	28	34	31	24	30	27	21	26	23	18	23	21	16	20	18	22
	C	0-7	Interior	74	74	65	74	74	53	74	74	44	74	64	38	74	55	33	74	47	30	69	41	28	52	33	23	41	28	20	34	25	17	30	21	15	26	19	20	23	17	18
			Exposed	74	55	33	74	46	30	64	39	27	54	34	24	47	31	22	40	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	15	17	~~12~~
		7-20	Interior	74	74	55	74	74	44	74	65	36	74	53	32	74	44	29	69	37	27	57	33	24	41	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	74	43	29	66	35	26	52	32	23	43	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	75	75	75	75	75	66	75	75	52	75	63	43	75	51	36	75	43	32	75	36	30	68	30	25	51	26	21	40	22	19	34	20	16	30	17	22	26	15	19
			Exposed	75	51	35	75	41	32	75	34	28	71	31	26	59	28	23	50	26	21	43	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	76	76	76	76	76	76	76	76	72	76	76	59	76	73	49	76	62	42	72	53	36	50	40	30	37	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	76	72	49	76	59	40	65	49	34	52	41	31	43	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
	D	0-7	Interior	74	74	47	74	67	39	74	56	34	74	48	31	69	41	28	59	36	25	51	33	23	39	28	20	33	24	17	28	20	22	25	18	19	22	16	17	19	21	~~15~~
			Exposed	68	41	28	57	35	25	48	31	22	41	28	20	35	26	18	32	23	16	29	21	15	25	18	19	21	15	17	18	20	~~14~~	16	18	~~13~~	21	~~16~~	~~11~~	19	~~14~~	~~10~~
		7-20	Interior	74	70	39	74	56	33	74	45	30	70	37	27	57	33	24	47	30	22	40	28	20	32	23	17	27	20	22	24	17	19	21	15	17	18	20	~~15~~	16	18	~~13~~
			Exposed	57	33	24	45	29	22	37	26	20	33	24	18	30	22	16	27	20	22	25	18	20	21	15	17	18	20	~~15~~	15	17	~~13~~	20	~~15~~	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9
		20-27	Interior	75	75	57	75	67	45	75	53	37	75	43	33	75	36	30	75	33	27	66	30	25	49	25	21	38	22	18	32	19	15	28	16	20	25	22	18	22	19	16
			Exposed	75	36	29	74	32	26	61	29	24	51	26	21	43	23	19	37	21	18	33	19	16	28	16	21	24	21	18	21	19	~~15~~	18	16	~~13~~	16	~~14~~	~~12~~	22	~~13~~	~~10~~
		27-45	Interior	76	76	76	76	76	62	76	75	51	76	62	42	72	53	36	58	45	32	49	39	30	35	32	25	30	27	21	26	23	19	23	20	16	20	18	22	18	16	19
			Exposed	71	52	35	55	43	32	45	36	28	37	32	26	33	29	23	30	27	21	27	24	19	23	21	16	20	18	21	17	15	18	15	20	16	20	18	~~14~~	18	16	~~13~~
10	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	51	60	60	44	60	57	34	60	44	29	58	36	25	47	31	22	39	27	19	33	24	17
			Exposed	60	60	59	60	60	49	60	60	41	60	59	35	60	50	32	60	44	29	60	38	26	48	31	22	38	27	19	32	23	16	28	20	22	25	18	19	22	16	17
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	42	60	60	36	60	45	30	60	35	26	47	30	22	36	26	19	32	23	17	28	20	15
			Exposed	60	60	50	60	60	40	60	58	34	60	47	31	60	40	28	60	34	25	51	31	23	37	26	20	31	23	17	27	20	22	23	17	19	21	15	17	18	20	~~15~~
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	51	69	53	37	69	39	31	69	33	27	60	28	23	48	25	21	40	22	18
			Exposed	69	69	69	69	69	59	69	69	47	69	56	39	69	46	34	69	39	31	69	34	28	61	29	24	47	25	20	37	21	18	32	19	15	28	16	20	25	22	18
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	51	74	57	39	58	44	32	44	36	28	35	31	25	31	28	22
			Exposed	74	74	74	74	74	74	74	74	65	74	74	53	74	66	44	74	56	38	63	48	34	45	36	28	34	31	24	30	27	21	26	23	18	23	21	16	20	18	22
	C	0-7	Interior	60	60	60	60	60	53	60	60	44	60	60	38	60	55	33	60	47	30	60	41	28	52	33	23	41	28	20	34	25	17	30	21	15	26	19	20	23	17	18
			Exposed	60	55	33	60	46	30	60	39	27	54	34	24	47	31	22	40	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	15	17	~~12~~
		7-20	Interior	60	60	55	60	60	44	60	60	36	60	53	32	60	44	29	60	37	27	57	33	24	41	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	60	43	29	60	35	26	52	32	23	43	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	69	69	69	69	69	66	69	69	52	69	63	43	69	51	36	69	43	32	69	36	30	68	30	25	51	26	21	40	22	19	34	20	16	30	17	22	26	15	19
			Exposed	69	51	35	69	41	32	69	34	28	69	31	26	59	28	23	50	26	21	43	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	74	74	74	74	74	74	74	74	72	74	74	59	74	73	49	74	62	42	72	53	36	50	40	30	37	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	74	72	49	74	59	40	65	49	34	52	41	31	43	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
	D	0-7	Interior	60	60	47	60	60	39	60	56	34	60	48	31	60	41	28	59	36	25	51	33	23	39	28	20	33	24	17	28	20	22	25	18	19	22	16	17	19	21	~~15~~
			Exposed	60	41	28	57	35	25	48	31	22	41	28	20	35	26	18	32	23	16	29	21	15	25	18	19	21	15	17	18	20	~~14~~	16	18	~~13~~	21	~~16~~	~~11~~	19	~~14~~	~~10~~
		7-20	Interior	60	60	39	60	56	33	60	45	30	60	37	27	57	33	24	47	30	22	40	28	20	32	23	17	27	20	22	24	17	19	21	15	17	18	20	~~15~~	16	18	~~13~~
			Exposed	57	33	24	45	29	22	37	26	20	33	24	18	30	22	16	27	20	22	25	18	20	21	15	17	18	20	~~15~~	15	17	~~13~~	20	~~15~~	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9
		20-27	Interior	71	71	57	71	67	45	71	53	37	71	43	33	71	36	30	71	33	27	66	30	25	49	25	21	38	22	18	32	19	15	28	16	20	25	22	18	22	19	16
			Exposed	71	36	29	71	32	26	61	29	24	51	26	21	43	23	19	37	21	18	33	19	16	28	16	21	24	21	18	21	19	~~15~~	18	16	~~13~~	16	~~14~~	~~12~~	22	~~13~~	~~10~~
		27-45	Interior	75	75	75	75	75	62	75	75	51	75	62	42	72	53	36	58	45	32	49	39	30	35	32	25	30	27	21	26	23	19	23	20	16	20	18	22	18	16	19
			Exposed	71	52	35	55	43	32	45	36	28	37	32	26	33	29	23	30	27	21	27	24	19	23	21	16	20	18	21	17	15	18	15	20	16	20	18	~~14~~	18	16	~~13~~
20	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	34	44	44	29	44	36	25	44	31	22	39	27	19	33	24	17
			Exposed	44	44	44	44	44	44	44	44	41	44	44	35	44	44	32	44	44	29	44	38	26	44	31	22	38	27	19	32	23	16	28	20	22	25	18	19	22	16	17
		7-20	Interior	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	26	45	30	22	36	26	19	32	23	17	28	20	15
			Exposed	45	45	45	45	45	40	45	45	34	45	45	31	45	40	28	45	34	25	45	31	23	37	26	20	31	23	17	27	20	22	23	17	19	21	15	17	18	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	51	54	53	37	54	39	31	54	33	27	54	28	23	48	25	21	40	22	18
			Exposed	54	54	54	54	54	54	54	54	47	54	54	39	54	46	34	54	39	31	54	34	28	54	29	24	47	25	20	37	21	18	32	19	15	28	16	20	25	22	18
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	51	60	57	39	55	44	32	44	36	28	35	31	25	31	28	22
			Exposed	60	60	60	60	60	60	60	60	60	60	60	53	60	60	44	60	56	38	60	48	34	45	36	28	34	31	24	30	27	21	26	23	18	23	21	16	20	18	22
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	38	44	44	33	44	44	30	44	41	28	44	33	23	41	28	20	34	25	17	30	21	15	26	19	20	23	17	18
			Exposed	44	44	33	44	44	30	44	39	27	44	34	24	44	31	22	40	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	15	17	~~12~~
		7-20	Interior	45	45	45	45	45	44	45	45	36	45	45	32	45	44	29	45	37	27	45	33	24	41	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	45	43	29	45	35	26	45	32	23	43	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	54	54	54	54	54	54	54	54	52	54	54	43	54	51	36	54	43	32	54	36	30	54	30	25	51	26	21	40	22	19	34	20	16	30	17	22	26	15	19
			Exposed	54	51	35	54	41	32	54	34	28	54	31	26	54	28	23	50	26	21	43	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	49	60	60	42	58	53	36	50	40	30	37	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	60	60	49	60	59	40	60	49	34	52	41	31	43	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
	D	0-7	Interior	44	44	44	44	44	39	44	44	34	44	44	31	44	41	28	44	36	25	44	33	23	39	28	20	33	24	17	28	20	22	25	18	19	22	16	17	19	21	~~15~~
			Exposed	44	41	28	44	35	25	44	31	22	41	28	20	35	26	18	32	23	16	29	21	15	25	18	19	21	15	17	18	20	~~14~~	16	18	~~13~~	21	~~16~~	~~11~~	19	~~14~~	~~10~~
		7-20	Interior	45	45	39	45	45	33	45	45	30	45	37	27	45	33	24	45	30	22	40	28	20	32	23	17	27	20	22	24	17	19	21	15	17	18	20	~~15~~	16	18	~~13~~
			Exposed	45	33	24	45	29	22	37	26	20	33	24	18	30	22	16	27	20	22	25	18	20	21	15	17	18	20	~~15~~	15	17	~~13~~	20	~~15~~	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9
		20-27	Interior	57	57	57	57	57	45	57	53	37	57	43	33	57	36	30	57	33	27	57	30	25	49	25	21	38	22	18	32	19	15	28	16	20	25	22	18	22	19	16
			Exposed	57	36	29	57	32	26	57	29	24	51	26	21	43	23	19	37	21	18	33	19	16	28	16	21	24	21	18	21	19	~~15~~	18	16	~~13~~	16	~~14~~	~~12~~	22	~~13~~	~~10~~
		27-45	Interior	62	62	62	62	62	62	62	62	51	62	62	42	61	53	36	57	45	32	49	39	30	35	32	25	30	27	21	26	23	19	23	20	16	20	18	22	18	16	19
			Exposed	62	52	35	55	43	32	45	36	28	37	32	26	33	29	23	30	27	21	27	24	19	23	21	16	20	18	21	17	15	18	15	20	16	20	18	~~14~~	18	16	~~13~~

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

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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CT1
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

*	Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.
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	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	101	101	101	101	101	101	101	101	97	101	101	92	101	101	88	101	98	84	101	94	81	101	87	72	93	81	57	87	76	50	82	61	43	78	54	38	67	48	34
			Exposed	101	101	88	101	96	83	101	92	79	101	87	75	97	84	62	93	80	57	89	77	52	83	62	44	77	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		7-20	Interior	102	102	102	102	102	100	102	102	94	102	102	89	102	99	84	102	94	80	102	90	77	98	82	59	90	76	51	83	59	44	78	52	38	62	46	34	55	40	30
			Exposed	102	99	84	102	93	80	102	88	75	99	83	60	94	79	55	89	76	50	85	62	46	78	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	102	86	78	102	79	61	94	64	53	88	56	46	83	49	41	78	44	36
			Exposed	102	102	94	102	97	88	102	92	83	102	87	79	102	83	75	101	79	60	96	75	55	89	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	96	103	102	92	103	94	85	95	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	103	103	101	103	103	95	103	100	90	103	95	85	99	90	82	94	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	101	101	90	101	99	85	101	94	81	101	90	77	100	86	67	95	82	60	91	79	55	85	66	46	79	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	100	86	66	94	81	58	90	78	52	85	70	47	82	61	43	78	55	39	75	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	102	102	87	102	96	82	102	90	77	102	86	64	97	81	58	92	78	53	87	66	48	80	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	96	81	58	90	77	52	85	63	46	81	56	42	77	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	102	102	97	102	101	91	102	95	86	102	90	81	102	85	77	102	81	64	99	77	58	91	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	102	85	77	102	80	62	97	76	56	92	61	50	88	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	103	103	103	103	103	98	103	103	93	103	97	88	103	93	84	97	89	80	92	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	102	93	84	96	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	101	96	83	101	91	78	101	86	72	96	83	60	91	79	55	88	76	50	84	65	46	78	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	91	79	54	87	75	49	82	62	44	79	56	39	75	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	102	92	79	102	87	69	97	82	59	92	78	53	87	66	48	83	59	44	80	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	87	65	48	82	58	43	78	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	102	97	87	102	91	82	102	86	78	102	81	64	99	77	58	94	64	53	90	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	99	77	58	93	63	52	89	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	103	103	94	103	99	89	103	94	84	98	89	80	92	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	92	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	94	81	95	87	72	93	81	57	87	76	50	82	61	43	78	54	38	67	48	34
			Exposed	95	95	88	95	95	83	95	92	79	95	87	75	95	84	62	93	80	57	89	77	52	83	62	44	77	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		7-20	Interior	95	95	95	95	95	95	95	95	94	95	95	89	95	95	84	95	94	80	95	90	77	95	82	59	90	76	51	83	59	44	78	52	38	62	46	34	55	40	30
			Exposed	95	95	84	95	93	80	95	88	75	95	83	60	94	79	55	89	76	50	85	62	46	78	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	89	99	94	85	99	86	78	99	79	61	94	64	53	88	56	46	83	49	41	78	44	36
			Exposed	99	99	94	99	97	88	99	92	83	99	87	79	99	83	75	99	79	60	96	75	55	89	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	96	102	102	92	102	94	85	95	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	102	102	101	102	102	95	102	100	90	102	95	85	99	90	82	94	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	95	95	90	95	95	85	95	94	81	95	90	77	95	86	67	95	82	60	91	79	55	85	66	46	79	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	95	86	66	94	81	58	90	78	52	85	70	47	82	61	43	78	55	39	75	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	95	95	87	95	95	82	95	90	77	95	86	64	95	81	58	92	78	53	87	66	48	80	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	95	81	58	90	77	52	85	63	46	81	56	42	77	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	99	99	97	99	99	91	99	95	86	99	90	81	99	85	77	99	81	64	99	77	58	91	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	99	85	77	99	80	62	97	76	56	92	61	50	88	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	102	102	102	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	102	93	84	96	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	95	95	83	95	91	78	95	86	72	95	83	60	91	79	55	88	76	50	84	65	46	78	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	91	79	54	87	75	49	82	62	44	79	56	39	75	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	95	92	79	95	87	69	95	82	59	92	78	53	87	66	48	83	59	44	80	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	87	65	48	82	58	43	78	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	100	97	87	100	91	82	100	86	78	100	81	64	99	77	58	94	64	53	90	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	99	77	58	93	63	52	89	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	102	102	94	102	99	89	102	94	84	98	89	80	92	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	92	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25
20	B	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	81	85	85	72	85	81	57	85	76	50	82	61	43	78	54	38	67	48	34
			Exposed	85	85	85	85	85	83	85	85	79	85	85	75	85	84	62	85	80	57	85	77	52	83	62	44	77	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		7-20	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	85	85	77	85	82	59	85	76	51	83	59	44	78	52	38	62	46	34	55	40	30
			Exposed	85	85	84	85	85	80	85	85	75	85	83	60	85	79	55	85	76	50	85	62	46	78	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	92	85	92	86	78	92	79	61	92	64	53	88	56	46	83	49	41	78	44	36
			Exposed	92	92	92	92	92	88	92	92	83	92	87	79	92	83	75	92	79	60	92	75	55	89	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	94	85	95	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	95	95	95	95	95	95	95	95	90	95	95	85	95	90	82	94	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	85	85	85	85	85	85	85	85	81	85	85	77	85	85	67	85	82	60	85	79	55	85	66	46	79	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	85	85	66	85	81	58	85	78	52	85	70	47	82	61	43	78	55	39	75	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	85	85	85	85	85	82	85	85	77	85	85	64	85	81	58	85	78	53	85	66	48	80	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	85	81	58	85	77	52	85	63	46	81	56	42	77	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	92	92	92	92	92	91	92	92	86	92	90	81	92	85	77	92	81	64	92	77	58	91	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	92	85	77	92	80	62	92	76	56	92	61	50	88	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	95	95	95	95	95	95	95	95	93	95	95	88	95	93	84	95	89	80	92	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	95	93	84	95	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	85	85	83	85	85	78	85	85	72	85	83	60	85	79	55	85	76	50	84	65	46	78	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	85	79	54	85	75	49	82	62	44	79	56	39	75	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	85	85	79	85	85	69	85	82	59	85	78	53	85	66	48	83	59	44	80	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	85	65	48	82	58	43	78	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	93	93	87	93	91	82	93	86	78	93	81	64	93	77	58	93	64	53	90	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	93	77	58	93	63	52	89	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	96	96	94	96	96	89	96	94	84	96	89	80	92	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	92	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25

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

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.

ASCE 7-22	II	30 ft	Ss = 1.25	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	57	69	69	50	69	61	43	69	54	38	67	48	34
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	57	69	69	52	69	62	44	69	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		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	59	69	69	51	69	59	44	69	52	38	62	46	34	55	40	30
			Exposed	69	69	69	69	69	69	69	69	69	69	69	60	69	69	55	69	69	50	69	62	46	69	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	78	86	79	61	86	64	53	86	56	46	83	49	41	78	44	36
			Exposed	86	86	86	86	86	86	86	86	83	86	86	79	86	83	75	86	79	60	86	75	55	86	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		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	85	90	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	90	90	90	90	90	90	90	90	90	90	90	85	90	90	82	90	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	60	69	69	55	69	66	46	69	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	69	69	66	69	69	58	69	69	52	69	69	47	69	61	43	69	55	39	69	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	~~26~~	30	33	~~23~~
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	64	69	69	58	69	69	53	69	66	48	69	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	69	69	58	69	69	52	69	63	46	69	56	42	69	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	~~23~~	38	28	~~21~~
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	81	86	85	77	86	81	64	86	77	58	86	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	86	85	77	86	80	62	86	76	56	86	61	50	86	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	~~25~~
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	90	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	90	90	84	90	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	60	69	69	55	69	69	50	69	65	46	69	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	69	69	54	69	69	49	69	62	44	69	56	39	69	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	~~25~~	28	31	~~22~~	38	27	~~20~~
		7-20	Interior	69	69	69	69	69	69	69	69	59	69	69	53	69	66	48	69	59	44	69	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	69	65	48	69	58	43	69	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	~~25~~	27	30	~~22~~	36	26	~~19~~	32	~~23~~	~~17~~
		20-27	Interior	88	88	87	88	88	82	88	86	78	88	81	64	88	77	58	88	64	53	88	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	88	77	58	88	63	52	88	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	~~23~~	28	~~25~~	~~21~~
		27-45	Interior	91	91	91	91	91	89	91	91	84	91	89	80	91	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	91	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	~~25~~
40	B	0-7	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	64	50	64	61	43	64	54	38	64	48	34
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	57	64	64	52	64	62	44	64	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		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	59	65	65	51	65	59	44	63	52	38	61	46	34	55	40	30
			Exposed	65	65	65	65	65	65	65	65	65	65	65	60	65	65	55	65	65	50	65	62	46	65	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		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	61	74	64	53	74	56	46	72	49	41	68	44	36
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	60	74	74	55	74	56	47	74	48	40	74	42	35	62	37	30	55	32	27	49	29	36
		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	78	80	80	63	74	74	55	68	62	49	61	55	43
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	78	85	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	55	64	64	46	64	56	40	64	48	34	58	42	30	51	37	40	45	33	36
			Exposed	64	64	64	64	64	58	64	64	52	64	64	47	64	61	43	64	55	39	64	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	~~26~~	30	33	~~23~~
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	58	65	65	53	65	65	48	65	55	41	62	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	65	65	58	65	65	52	65	63	46	65	56	42	65	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	~~23~~	38	28	~~21~~
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	64	74	74	58	74	60	49	73	51	42	68	44	37	64	39	32	58	34	28	52	30	38
			Exposed	74	74	74	74	74	62	74	74	56	74	61	50	74	55	46	74	51	42	74	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	~~25~~
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	84	84	77	77	77	59	70	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	85	85	84	85	85	79	85	83	75	85	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	60	68	68	55	68	68	50	68	65	46	68	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	68	68	54	68	68	49	68	62	44	68	56	39	68	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	~~25~~	28	31	~~22~~	38	27	~~20~~
		7-20	Interior	69	69	69	69	69	69	69	69	59	69	69	53	69	66	48	69	59	44	69	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	69	65	48	69	58	43	69	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	~~25~~	27	30	~~22~~	36	26	~~19~~	32	~~23~~	~~17~~
		20-27	Interior	79	79	79	79	79	79	79	79	78	79	79	64	79	77	58	79	64	53	79	59	49	78	50	41	72	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	79	77	58	79	63	52	79	56	47	79	51	42	79	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	~~23~~	28	~~25~~	~~21~~
		27-45	Interior	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	85	81	64	82	78	58	73	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	87	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	~~25~~
50	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	50	55	55	43	55	54	38	55	48	34
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	44	55	53	38	55	46	33	55	40	28	48	35	38	43	31	34
		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	56	56	56	51	56	56	44	55	52	38	53	46	34	52	40	30
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	50	56	56	46	56	52	39	56	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		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	61	65	64	53	64	56	46	61	49	41	59	44	36
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	60	65	65	55	65	56	47	65	48	40	65	42	35	62	37	30	55	32	27	49	29	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	73	73	73	68	68	63	64	64	55	61	61	49	57	55	43
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	76	56	73	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	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	46	55	55	40	55	48	34	55	42	30	51	37	40	45	33	36
			Exposed	55	55	55	55	55	55	55	55	52	55	55	47	55	55	43	55	55	39	55	51	36	55	43	30	50	37	39	44	32	34	38	28	30	34	37	~~26~~	30	33	~~23~~
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	48	56	55	41	54	47	35	52	41	30	49	36	27	43	32	35	38	28	31
			Exposed	56	56	56	56	56	52	56	56	46	56	56	42	56	51	38	56	47	35	56	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	~~23~~	38	28	~~21~~
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	58	65	60	49	62	51	42	59	44	37	57	39	32	54	34	28	52	30	38
			Exposed	65	65	65	65	65	62	65	65	56	65	61	50	65	55	46	65	51	42	65	46	38	65	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	~~25~~
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	71	71	71	66	66	59	62	62	51	58	55	44	54	49	39	48	43	34	42	38	30
			Exposed	76	76	76	76	76	76	76	76	75	76	76	61	76	76	55	74	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	55	59	59	50	59	59	46	59	55	39	59	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	59	59	54	59	59	49	59	59	44	59	56	39	59	51	36	59	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	~~25~~	28	31	~~22~~	38	27	~~20~~
		7-20	Interior	60	60	60	60	60	60	60	60	59	60	60	53	60	60	48	60	59	44	60	54	40	57	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	60	60	48	60	58	43	60	52	39	60	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	~~25~~	27	30	~~22~~	36	26	~~19~~	32	~~23~~	~~17~~
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	64	69	69	58	69	64	53	69	59	49	66	50	41	62	43	35	59	37	31	55	32	27	48	28	36	43	38	32
			Exposed	69	69	58	69	63	52	69	56	47	69	51	42	69	46	38	69	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	~~23~~	28	~~25~~	~~21~~
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	77	77	77	74	74	64	70	70	58	64	62	49	59	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	80	80	77	80	80	62	80	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	~~25~~

(Column groups 90–180 are Basic Wind Speed (mph).)

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

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	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	86	86	86	86	86	84	86	86	80	86	86	77	86	84	71	86	81	60	86	78	52	83	68	41	78	53	35	70	43	30	56	37	26	46	33	23	40	29	21
			Exposed	86	84	70	86	80	58	86	77	49	84	70	42	81	60	38	78	52	34	75	46	31	57	38	27	45	32	23	38	28	20	33	24	17	29	21	23	26	19	20
		7-20	Interior	86	86	86	86	86	81	86	86	78	86	85	73	86	81	60	86	78	50	86	75	43	80	54	36	75	42	31	56	36	27	44	31	23	38	28	20	34	25	18
			Exposed	86	81	59	86	77	48	85	69	41	81	57	37	78	47	33	73	41	30	61	38	28	44	32	23	37	27	20	32	23	17	28	21	23	25	18	20	22	16	18
		20-27	Interior	87	87	87	87	87	87	87	87	85	87	87	81	87	84	78	87	81	74	87	78	61	87	64	44	83	47	37	78	39	32	72	34	28	58	30	25	47	27	22
			Exposed	87	84	78	87	80	70	87	76	56	87	67	46	86	55	40	83	46	37	80	41	34	73	34	28	56	29	24	44	25	21	38	22	18	33	20	16	30	17	22
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	86	87	87	83	87	87	80	87	84	77	84	78	61	78	68	46	69	53	39	53	43	34	42	38	30	37	33	26
			Exposed	87	87	83	87	86	79	87	82	75	84	79	63	81	76	53	78	67	45	75	57	40	54	43	34	41	37	29	36	32	25	31	28	22	27	25	19	24	22	17
	C	0-7	Interior	86	86	76	86	82	64	86	79	53	86	75	45	82	66	40	79	57	36	77	50	33	63	40	28	49	34	24	41	29	21	35	26	18	31	23	16	28	20	22
			Exposed	82	65	40	79	55	36	75	47	32	65	41	29	56	37	26	48	34	24	42	31	22	36	26	18	31	22	16	26	19	21	23	17	18	20	22	16	18	20	~~14~~
		7-20	Interior	86	83	66	86	79	53	86	75	44	83	63	39	79	52	35	76	44	32	68	40	29	49	34	25	39	29	21	34	25	18	30	22	16	26	19	21	23	17	19
			Exposed	79	52	35	76	42	31	63	38	28	51	34	25	43	31	23	39	28	21	36	26	19	30	22	16	26	19	21	22	16	18	19	22	16	17	19	~~14~~	23	17	~~12~~
		20-27	Interior	87	86	79	87	82	76	87	78	63	87	75	51	87	61	43	85	51	39	82	43	35	76	36	30	61	31	26	48	27	22	40	23	19	35	21	17	31	18	23
			Exposed	87	61	42	84	49	38	80	41	34	77	37	31	71	34	28	60	31	25	52	28	23	41	24	20	35	20	17	30	18	22	26	15	19	23	21	17	20	18	~~15~~
		27-45	Interior	87	87	84	87	87	81	87	84	77	86	81	71	83	77	59	80	74	50	77	63	43	60	47	36	44	39	31	38	34	27	33	29	23	29	26	21	26	23	18
			Exposed	83	77	58	79	70	48	75	58	41	63	49	37	52	42	33	43	38	30	39	35	28	33	30	24	28	26	20	25	22	18	22	19	15	19	17	20	17	23	18
	D	0-7	Interior	86	80	57	86	76	47	83	67	41	80	57	37	77	50	33	70	43	30	61	39	28	47	33	23	39	28	20	34	25	17	29	21	23	26	19	20	23	17	18
			Exposed	76	49	33	68	42	30	57	38	27	49	34	24	42	31	22	38	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	23	17	~~12~~
		7-20	Interior	86	77	47	84	67	40	80	54	36	77	45	32	68	40	29	57	36	27	48	33	24	38	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	68	40	29	54	35	26	44	32	23	39	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	87	80	68	87	76	54	87	63	44	85	52	39	82	43	35	79	39	32	76	36	30	59	30	25	45	26	21	38	22	18	33	20	16	29	17	22	26	15	19
			Exposed	81	43	35	78	38	31	73	34	28	61	31	26	52	28	23	44	26	21	40	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	87	85	78	87	81	74	84	78	61	80	75	50	77	63	43	70	54	39	58	46	35	42	38	30	36	32	26	31	28	22	27	25	19	24	22	17	21	19	23
			Exposed	77	62	42	66	51	38	53	43	34	44	39	31	39	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
10	B	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	60	71	71	52	71	68	41	71	53	35	70	43	30	56	37	26	46	33	23	40	29	21
			Exposed	71	71	70	71	71	58	71	71	49	71	70	42	71	60	38	71	52	34	71	46	31	57	38	27	45	32	23	38	28	20	33	24	17	29	21	23	26	19	20
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	60	72	72	50	72	72	43	72	54	36	72	42	31	56	36	27	44	31	23	38	28	20	34	25	18
			Exposed	72	72	59	72	72	48	72	69	41	72	57	37	72	47	33	72	41	30	61	38	28	44	32	23	37	27	20	32	23	17	28	21	23	25	18	20	22	16	18
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	78	82	81	74	82	78	61	82	64	44	82	47	37	78	39	32	72	34	28	58	30	25	47	27	22
			Exposed	82	82	78	82	80	70	82	76	56	82	67	46	82	55	40	82	46	37	80	41	34	73	34	28	56	29	24	44	25	21	38	22	18	33	20	16	30	17	22
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	86	84	77	84	78	61	78	68	46	69	53	39	53	43	34	42	38	30	37	33	26
			Exposed	86	86	83	86	86	79	86	82	75	84	79	63	81	76	53	78	67	45	75	57	40	54	43	34	41	37	29	36	32	25	31	28	22	27	25	19	24	22	17
	C	0-7	Interior	71	71	71	71	71	64	71	71	53	71	71	45	71	66	40	71	57	36	71	50	33	63	40	28	49	34	24	41	29	21	35	26	18	31	23	16	28	20	22
			Exposed	71	65	40	71	55	36	71	47	32	65	41	29	56	37	26	48	34	24	42	31	22	36	26	18	31	22	16	26	19	21	23	17	18	20	22	16	18	20	~~14~~
		7-20	Interior	72	72	66	72	72	53	72	72	44	72	63	39	72	52	35	72	44	32	68	40	29	49	34	25	39	29	21	34	25	18	30	22	16	26	19	21	23	17	19
			Exposed	72	52	35	72	42	31	63	38	28	51	34	25	43	31	23	39	28	21	36	26	19	30	22	16	26	19	21	22	16	18	19	22	16	17	19	~~14~~	23	17	~~12~~
		20-27	Interior	82	82	79	82	82	76	82	78	63	82	75	51	82	61	43	82	51	39	82	43	35	76	36	30	61	31	26	48	27	22	40	23	19	35	21	17	31	18	23
			Exposed	82	61	42	82	49	38	80	41	34	77	37	31	71	34	28	60	31	25	52	28	23	41	24	20	35	20	17	30	18	22	26	15	19	23	21	17	20	18	~~15~~
		27-45	Interior	86	86	84	86	86	81	86	84	77	86	81	71	83	77	59	80	74	50	77	63	43	60	47	36	44	39	31	38	34	27	33	29	23	29	26	21	26	23	18
			Exposed	83	77	58	79	70	48	75	58	41	63	49	37	52	42	33	43	38	30	39	35	28	33	30	24	28	26	20	25	22	18	22	19	15	19	17	20	17	23	18
	D	0-7	Interior	71	71	57	71	71	47	71	67	41	71	57	37	71	50	33	70	43	30	61	39	28	47	33	23	39	28	20	34	25	17	29	21	23	26	19	20	23	17	18
			Exposed	71	49	33	68	42	30	57	38	27	49	34	24	42	31	22	38	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	23	17	~~12~~
		7-20	Interior	72	72	47	72	67	40	72	54	36	72	45	32	68	40	29	57	36	27	48	33	24	38	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	68	40	29	54	35	26	44	32	23	39	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	84	80	68	84	76	54	84	63	44	84	52	39	82	43	35	79	39	32	76	36	30	59	30	25	45	26	21	38	22	18	33	20	16	29	17	22	26	15	19
			Exposed	81	43	35	78	38	31	73	34	28	61	31	26	52	28	23	44	26	21	40	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	87	85	78	87	81	74	84	78	61	80	75	50	77	63	43	70	54	39	58	46	35	42	38	30	36	32	26	31	28	22	27	25	19	24	22	17	21	19	23
			Exposed	77	62	42	66	51	38	53	43	34	44	39	31	39	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
20	B	0-7	Interior	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	53	35	53	43	30	53	37	26	46	33	23	40	29	21
			Exposed	53	53	53	53	53	53	53	53	49	53	53	42	53	53	38	53	52	34	53	46	31	53	38	27	45	32	23	38	28	20	33	24	17	29	21	23	26	19	20
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	43	53	53	36	53	42	31	53	36	27	44	31	23	38	28	20	34	25	18
			Exposed	53	53	53	53	53	48	53	53	41	53	53	37	53	47	33	53	41	30	53	38	28	44	32	23	37	27	20	32	23	17	28	21	23	25	18	20	22	16	18
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	64	44	65	47	37	65	39	32	65	34	28	58	30	25	47	27	22
			Exposed	65	65	65	65	65	65	65	65	56	65	65	46	65	55	40	65	46	37	65	41	34	65	34	28	56	29	24	44	25	21	38	22	18	33	20	16	30	17	22
		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	61	72	68	46	66	53	39	53	43	34	42	38	30	37	33	26
			Exposed	72	72	72	72	72	72	72	72	72	72	72	63	72	72	53	72	67	45	72	57	40	54	43	34	41	37	29	36	32	25	31	28	22	27	25	19	24	22	17
	C	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	45	53	53	40	53	53	36	53	50	33	53	40	28	49	34	24	41	29	21	35	26	18	31	23	16	28	20	22
			Exposed	53	53	40	53	53	36	53	47	32	53	41	29	53	37	26	48	34	24	42	31	22	36	26	18	31	22	16	26	19	21	23	17	18	20	22	16	18	20	~~14~~
		7-20	Interior	53	53	53	53	53	53	53	53	44	53	53	39	53	52	35	53	44	32	53	40	29	49	34	25	39	29	21	34	25	18	30	22	16	26	19	21	23	17	19
			Exposed	53	52	35	53	42	31	53	38	28	51	34	25	43	31	23	39	28	21	36	26	19	30	22	16	26	19	21	22	16	18	19	22	16	17	19	~~14~~	23	17	~~12~~
		20-27	Interior	65	65	65	65	65	65	65	65	63	65	65	51	65	61	43	65	51	39	65	43	35	65	36	30	61	31	26	48	27	22	40	23	19	35	21	17	31	18	23
			Exposed	65	61	42	65	49	38	65	41	34	65	37	31	65	34	28	60	31	25	52	28	23	41	24	20	35	20	17	30	18	22	26	15	19	23	21	17	20	18	~~15~~
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	71	72	72	59	72	72	50	70	63	43	60	47	36	44	39	31	38	34	27	33	29	23	29	26	21	26	23	18
			Exposed	72	72	58	72	70	48	72	58	41	63	49	37	52	42	33	43	38	30	39	35	28	33	30	24	28	26	20	25	22	18	22	19	15	19	17	20	17	23	18
	D	0-7	Interior	53	53	53	53	53	47	53	53	41	53	53	37	53	50	33	53	43	30	53	39	28	47	33	23	39	28	20	34	25	17	29	21	23	26	19	20	23	17	18
			Exposed	53	49	33	53	42	30	53	38	27	49	34	24	42	31	22	38	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	23	17	~~12~~
		7-20	Interior	53	53	47	53	53	40	53	53	36	53	45	32	53	40	29	53	36	27	48	33	24	38	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	53	40	29	53	35	26	44	32	23	39	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	68	68	68	68	68	54	68	63	44	68	52	39	68	43	35	68	39	32	68	36	30	59	30	25	45	26	21	38	22	18	33	20	16	29	17	22	26	15	19
			Exposed	68	43	35	68	38	31	68	34	28	61	31	26	52	28	23	44	26	21	40	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	75	75	75	75	75	74	75	75	61	75	75	50	73	63	43	69	54	39	58	46	35	42	38	30	36	32	26	31	28	22	27	25	19	24	22	17	21	19	23
			Exposed	75	62	42	66	51	38	53	43	34	44	39	31	39	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~

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

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	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CT1
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

*	Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.
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	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	102	102	102	102	102	102	102	102	98	102	102	93	102	102	89	102	99	85	102	94	81	102	87	75	94	81	59	88	76	51	83	63	44	78	55	39	71	49	35
			Exposed	102	102	89	102	97	84	102	93	80	102	88	76	98	84	64	94	81	58	90	78	53	83	63	45	78	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		7-20	Interior	102	102	102	102	102	101	102	102	95	102	102	90	102	100	85	102	95	81	102	91	78	99	83	60	91	77	52	84	61	45	78	53	39	64	47	35	57	41	31
			Exposed	102	100	85	102	94	80	102	89	76	100	84	62	95	80	56	90	76	51	86	63	47	79	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	103	87	79	103	80	62	95	67	54	89	57	47	84	50	42	79	45	37
			Exposed	103	103	95	103	99	89	103	93	84	103	88	80	103	84	76	102	80	62	97	76	56	90	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	103	93	103	95	85	96	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	103	103	102	103	103	96	103	101	91	103	96	86	100	91	82	95	87	79	91	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	102	102	91	102	100	86	102	95	82	102	91	78	101	87	73	96	83	61	92	80	56	85	70	47	80	57	41	74	50	35	59	43	31	52	38	27	46	34	36
			Exposed	101	86	72	95	82	60	90	78	54	86	75	48	83	62	44	79	57	40	76	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	24
		7-20	Interior	102	102	88	102	97	83	102	91	78	102	86	66	98	82	59	93	79	54	88	75	49	81	56	42	75	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	97	82	59	91	78	53	86	64	47	82	58	43	78	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	24	26	28	21
		20-27	Interior	103	103	98	103	102	92	103	96	87	103	91	82	103	86	78	103	82	65	100	78	60	92	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	103	86	78	103	81	64	98	77	57	93	62	52	89	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	98	90	81	94	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	103	94	84	97	89	80	91	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	102	97	83	102	92	79	102	87	75	97	83	62	92	80	56	88	77	51	85	67	47	79	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	92	80	56	87	76	50	83	63	45	79	57	40	76	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	25	29	32	22	38	28	20
		7-20	Interior	102	93	80	102	88	75	99	83	60	93	79	54	88	75	49	84	61	45	80	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	88	75	49	83	59	44	79	53	39	72	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	23	36	27	20	32	24	18
		20-27	Interior	103	98	88	103	92	83	103	87	79	103	82	72	100	78	60	95	71	54	91	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	100	78	59	94	64	53	89	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	24	29	26	21
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	93	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	94	81	95	87	75	94	81	59	88	76	51	83	63	44	78	55	39	71	49	35
			Exposed	95	95	89	95	95	84	95	93	80	95	88	76	95	84	64	94	81	58	90	78	53	83	63	45	78	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		7-20	Interior	96	96	96	96	96	96	96	96	95	96	96	90	96	96	85	96	95	81	96	91	78	96	83	60	91	77	52	84	61	45	78	53	39	64	47	35	57	41	31
			Exposed	96	96	85	96	94	80	96	89	76	96	84	62	95	80	56	90	76	51	86	63	47	79	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	90	100	95	86	100	87	79	100	80	62	95	67	54	89	57	47	84	50	42	79	45	37
			Exposed	100	100	95	100	99	89	100	93	84	100	88	80	100	84	76	100	80	62	97	76	56	90	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	95	85	96	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	102	102	102	102	102	96	102	101	91	102	96	86	100	91	82	95	87	79	91	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	95	95	91	95	95	86	95	95	82	95	91	78	95	87	73	95	83	61	92	80	56	85	70	47	80	57	41	74	50	35	59	43	31	52	38	27	46	34	36
			Exposed	95	86	72	95	82	60	90	78	54	86	75	48	83	62	44	79	57	40	76	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	24
		7-20	Interior	96	96	88	96	96	83	96	91	78	96	86	66	96	82	59	93	79	54	88	75	49	81	56	42	75	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	96	82	59	91	78	53	86	64	47	82	58	43	78	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	24	26	28	21
		20-27	Interior	100	100	98	100	100	92	100	96	87	100	91	82	100	86	78	100	82	65	100	78	60	92	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	100	86	78	100	81	64	98	77	57	93	62	52	89	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	98	90	81	94	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	102	94	84	97	89	80	91	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	95	95	83	95	92	79	95	87	75	95	83	62	92	80	56	88	77	51	85	67	47	79	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	92	80	56	87	76	50	83	63	45	79	57	40	76	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	25	29	32	22	38	28	20
		7-20	Interior	96	93	80	96	88	75	96	83	60	93	79	54	88	75	49	84	61	45	80	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	88	75	49	83	59	44	79	53	39	72	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	23	36	27	20	32	24	18
		20-27	Interior	101	98	88	101	92	83	101	87	79	101	82	72	100	78	60	95	71	54	91	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	100	78	59	94	64	53	89	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	24	29	26	21
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	93	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	75	86	81	59	86	76	51	83	63	44	78	55	39	71	49	35
			Exposed	86	86	86	86	86	84	86	86	80	86	86	76	86	84	64	86	81	58	86	78	53	83	63	45	78	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	78	86	83	60	86	77	52	84	61	45	78	53	39	64	47	35	57	41	31
			Exposed	86	86	85	86	86	80	86	86	76	86	84	62	86	80	56	86	76	51	86	63	47	79	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	92	86	92	87	79	92	80	62	92	67	54	89	57	47	84	50	42	79	45	37
			Exposed	92	92	92	92	92	89	92	92	84	92	88	80	92	84	76	92	80	62	92	76	56	90	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	95	85	96	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	96	96	96	96	96	96	96	96	91	96	96	86	96	91	82	95	87	79	91	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	86	86	86	86	86	86	86	86	82	86	86	78	86	86	73	86	83	61	86	80	56	85	70	47	80	57	41	74	50	35	59	43	31	52	38	27	46	34	36
			Exposed	86	86	72	86	82	60	86	78	54	86	75	48	83	62	44	79	57	40	76	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	24
		7-20	Interior	86	86	86	86	86	83	86	86	78	86	86	66	86	82	59	86	79	54	86	75	49	81	56	42	75	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	86	82	59	86	78	53	86	64	47	82	58	43	78	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	24	26	28	21
		20-27	Interior	92	92	92	92	92	92	92	92	87	92	91	82	92	86	78	92	82	65	92	78	60	92	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	92	86	78	92	81	64	92	77	57	92	62	52	89	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	96	96	96	96	96	96	96	96	94	96	96	89	96	94	85	96	90	81	94	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	96	94	84	96	89	80	91	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	86	86	83	86	86	79	86	86	75	86	83	62	86	80	56	86	77	51	85	67	47	79	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	86	80	56	86	76	50	83	63	45	79	57	40	76	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	25	29	32	22	38	28	20
		7-20	Interior	86	86	80	86	86	75	86	83	60	86	79	54	86	75	49	84	61	45	80	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	86	75	49	83	59	44	79	53	39	72	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	23	36	27	20	32	24	18
		20-27	Interior	94	94	88	94	92	83	94	87	79	94	82	72	94	78	60	94	71	54	91	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	94	78	59	94	64	53	89	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	24	29	26	21
		27-45	Interior	97	97	95	97	97	90	97	95	85	97	90	81	93	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	93	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26

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

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.

ASCE 7-22	II	30 ft	Ss = 3.00	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

UNIRAC SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph) 90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	70	70	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	63	44	70	55	39	70	49	35
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	58	70	70	53	70	63	45	70	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		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	60	71	71	52	71	61	45	71	53	39	64	47	35	57	41	31
			Exposed	71	71	71	71	71	71	71	71	71	71	71	62	71	71	56	71	71	51	71	63	47	71	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	79	87	80	62	87	67	54	87	57	47	84	50	42	79	45	37
			Exposed	87	87	87	87	87	87	87	87	84	87	87	80	87	84	76	87	80	62	87	76	56	87	58	48	83	49	41	78	43	35	64	37	31	56	33	27	50	29	37
		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	85	90	88	79	89	82	65	83	77	57	77	63	50	62	56	44
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	79	90	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	61	70	70	56	70	70	47	70	57	41	70	50	35	59	43	31	52	38	27	46	34	36
			Exposed	70	70	70	70	70	60	70	70	54	70	70	48	70	62	44	70	57	40	70	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	~~24~~
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	66	71	71	59	71	71	54	71	71	49	71	56	42	69	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	71	71	59	71	71	53	71	64	47	71	58	43	71	52	39	67	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	~~24~~	26	28	~~21~~
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	82	87	86	78	87	82	65	87	78	60	87	61	50	85	52	43	80	45	37	75	40	33	59	35	29	53	31	26
			Exposed	87	86	78	87	81	64	87	77	57	87	62	52	87	57	47	85	52	43	81	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	78	86	79	61	79	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	90	90	84	90	89	80	90	84	76	87	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	62	70	70	56	70	70	51	70	67	47	70	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	70	70	56	70	70	50	70	63	45	70	57	40	70	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	~~25~~	29	32	~~22~~	38	28	~~20~~
		7-20	Interior	71	71	71	71	71	71	71	71	60	71	71	54	71	71	49	71	61	45	71	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	71	71	49	71	59	44	71	53	39	71	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	~~23~~	36	27	~~20~~	32	~~24~~	~~18~~
		20-27	Interior	88	88	88	88	88	83	88	87	79	88	82	72	88	78	60	88	71	54	88	60	50	84	51	42	78	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	88	78	59	88	64	53	88	58	48	85	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	~~24~~	29	26	~~21~~
		27-45	Interior	92	92	92	92	92	90	92	92	85	92	90	81	92	86	77	89	82	65	85	79	60	78	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	92	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
40	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	59	65	65	51	65	63	44	65	55	39	65	49	35
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	58	65	65	53	65	63	45	65	54	38	64	47	33	56	41	29	50	36	26	44	32	34
		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	60	66	66	52	66	61	45	65	53	39	63	47	35	57	41	31
			Exposed	66	66	66	66	66	66	66	66	66	66	66	62	66	66	56	66	66	51	66	63	47	66	53	40	63	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		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	62	76	67	54	76	57	47	74	50	42	70	45	37
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	62	76	76	56	76	58	48	76	49	41	76	43	35	64	37	31	56	33	27	50	29	37
		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	85	86	86	79	82	82	65	76	76	57	70	63	50	62	56	44
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	79	86	84	76	83	77	57	77	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	65	56	65	65	47	65	57	41	65	50	35	59	43	31	52	38	27	46	34	36
			Exposed	65	65	65	65	65	60	65	65	54	65	65	48	65	62	44	65	57	40	65	52	37	60	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	~~24~~
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	59	66	66	54	66	66	49	66	56	42	63	48	36	57	42	31	50	37	27	44	32	36	39	29	32
			Exposed	66	66	59	66	66	53	66	64	47	66	58	43	66	52	39	66	48	35	60	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	~~24~~	26	28	~~21~~
		20-27	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	65	76	76	60	76	61	50	75	52	43	70	45	37	66	40	33	59	35	29	53	31	26
			Exposed	76	76	76	76	76	64	76	76	57	76	62	52	76	57	47	76	52	43	76	47	39	75	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	85	85	78	79	79	61	72	66	52	63	57	45	55	50	39	49	44	35	43	39	31
			Exposed	86	86	84	86	86	80	86	84	76	86	80	62	82	77	56	78	65	51	75	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	62	70	70	56	70	70	51	70	67	47	70	56	39	66	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	70	70	56	70	70	50	70	63	45	70	57	40	70	52	37	65	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	~~25~~	29	32	~~22~~	38	28	~~20~~
		7-20	Interior	71	71	71	71	71	71	71	71	60	71	71	54	71	71	49	71	61	45	71	56	41	64	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	71	71	49	71	59	44	71	53	39	71	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	~~23~~	36	27	~~20~~	32	~~24~~	~~18~~
		20-27	Interior	81	81	81	81	81	81	81	81	79	81	81	72	81	78	60	81	71	54	81	60	50	80	51	42	75	44	36	64	38	31	56	33	27	50	29	36	44	26	32
			Exposed	81	78	59	81	64	53	81	58	48	81	52	43	81	47	39	78	43	36	74	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	~~24~~	29	26	~~21~~
		27-45	Interior	88	88	88	88	88	88	88	88	85	88	88	81	87	86	77	86	82	65	84	79	60	76	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	88	86	77	88	81	64	83	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26
50	B	0-7	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	51	56	56	44	56	55	39	56	49	35
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	45	56	54	38	56	47	33	56	41	29	50	36	26	44	32	34
		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	52	57	57	45	56	53	39	54	47	35	53	41	31
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	51	57	57	47	57	53	40	57	46	34	54	40	29	47	35	26	42	31	34	37	27	30
		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	54	65	57	47	63	50	42	61	45	37
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	62	66	66	56	66	58	48	66	49	41	66	43	35	64	37	31	56	33	27	50	29	37
		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	75	75	75	70	70	65	65	65	57	62	62	50	59	56	44
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	77	77	57	75	62	49	60	54	43	52	47	37	46	41	33	41	37	29
	C	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	47	56	56	41	56	50	35	56	43	31	52	38	27	46	34	36
			Exposed	56	56	56	56	56	56	56	56	54	56	56	48	56	56	44	56	56	40	56	52	37	56	44	31	51	38	27	45	32	35	39	28	31	34	38	27	30	34	~~24~~
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	57	56	42	55	48	36	53	42	31	50	37	27	44	32	36	39	29	32
			Exposed	57	57	57	57	57	53	57	57	47	57	57	43	57	52	39	57	48	35	57	44	32	51	37	27	43	32	36	38	27	31	33	36	27	29	32	~~24~~	26	28	~~21~~
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	66	66	60	66	61	50	63	52	43	61	45	37	58	40	33	56	35	29	53	31	26
			Exposed	66	66	66	66	66	64	66	66	57	66	62	52	66	57	47	66	52	43	66	47	39	66	40	33	58	34	28	51	30	37	44	26	33	39	35	29	35	31	26
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	73	73	73	68	68	61	63	63	52	59	57	45	55	50	39	49	44	35	43	39	31
			Exposed	77	77	77	77	77	77	77	77	76	77	77	62	77	77	56	76	65	51	73	59	47	56	50	40	48	43	34	42	37	30	36	33	26	32	29	35	29	26	31
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	56	61	61	51	61	61	47	61	56	39	61	48	34	57	41	29	50	36	26	44	32	34	39	28	30
			Exposed	61	61	56	61	61	50	61	61	45	61	57	40	61	52	37	61	47	33	59	43	31	50	36	26	43	31	34	37	27	29	32	36	~~25~~	29	32	~~22~~	38	28	~~20~~
		7-20	Interior	61	61	61	61	61	61	61	61	60	61	61	54	61	61	49	61	61	45	61	56	41	58	47	35	55	40	30	48	35	26	42	31	34	37	27	30	33	36	27
			Exposed	61	61	49	61	59	44	61	53	39	61	48	36	60	44	32	54	40	30	50	36	27	42	31	35	36	26	30	31	35	26	27	30	~~23~~	36	27	~~20~~	32	~~24~~	~~18~~
		20-27	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	60	71	71	54	71	60	50	68	51	42	64	44	36	61	38	31	56	33	27	50	29	36	44	26	32
			Exposed	71	71	59	71	64	53	71	58	48	71	52	43	71	47	39	71	43	36	71	39	33	57	33	28	49	29	36	42	37	31	37	33	27	33	29	~~24~~	29	26	~~21~~
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	81	79	79	77	76	76	65	72	72	60	65	64	51	61	55	43	53	47	38	46	41	33	41	37	29	36	32	26
			Exposed	82	82	77	82	81	64	82	77	57	79	65	52	75	59	47	60	54	43	55	49	39	47	42	33	40	36	29	35	31	37	30	27	33	27	36	29	36	32	26

*	Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.
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	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CT1
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

*	Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.
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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	74	74	74	74	74	74	74	74	74	74	74	71	74	74	59	74	74	51	74	74	44	74	57	34	74	44	29	58	36	25	47	31	22	39	27	19	33	24	17
			Exposed	74	74	59	74	74	49	74	69	41	74	59	35	74	50	32	73	44	29	63	38	26	48	31	22	38	27	19	32	23	16	28	20	22	25	18	19	22	16	17
		7-20	Interior	74	74	74	74	74	74	74	74	74	74	74	61	74	74	50	74	74	42	74	63	36	74	45	30	63	35	26	47	30	22	36	26	19	32	23	17	28	20	15
			Exposed	74	74	50	74	73	40	74	58	34	74	47	31	74	40	28	61	34	25	51	31	23	37	26	20	31	23	17	27	20	22	23	17	19	21	15	17	18	20	~~15~~
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	62	75	75	51	75	53	37	75	39	31	75	33	27	60	28	23	48	25	21	40	22	18
			Exposed	75	75	75	75	75	59	75	70	47	75	56	39	75	46	34	75	39	31	75	34	28	61	29	24	47	25	20	37	21	18	32	19	15	28	16	20	25	22	18
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	70	76	75	51	76	57	39	58	44	32	44	36	28	35	31	25	31	28	22
			Exposed	76	76	76	76	76	76	76	76	65	76	76	53	76	66	44	75	56	38	63	48	34	45	36	28	34	31	24	30	27	21	26	23	18	23	21	16	20	18	22
	C	0-7	Interior	74	74	65	74	74	53	74	74	44	74	64	38	74	55	33	74	47	30	69	41	28	52	33	23	41	28	20	34	25	17	30	21	15	26	19	20	23	17	18
			Exposed	74	55	33	74	46	30	64	39	27	54	34	24	47	31	22	40	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	15	17	~~12~~
		7-20	Interior	74	74	55	74	74	44	74	65	36	74	53	32	74	44	29	69	37	27	57	33	24	41	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	74	43	29	66	35	26	52	32	23	43	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	75	75	75	75	75	66	75	75	52	75	63	43	75	51	36	75	43	32	75	36	30	68	30	25	51	26	21	40	22	19	34	20	16	30	17	22	26	15	19
			Exposed	75	51	35	75	41	32	75	34	28	71	31	26	59	28	23	50	26	21	43	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	76	76	76	76	76	76	76	76	72	76	76	59	76	73	49	76	62	42	72	53	36	50	40	30	37	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	76	72	49	76	59	40	65	49	34	52	41	31	43	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
	D	0-7	Interior	74	74	47	74	67	39	74	56	34	74	48	31	69	41	28	59	36	25	51	33	23	39	28	20	33	24	17	28	20	22	25	18	19	22	16	17	19	21	~~15~~
			Exposed	68	41	28	57	35	25	48	31	22	41	28	20	35	26	18	32	23	16	29	21	15	25	18	19	21	15	17	18	20	~~14~~	16	18	~~13~~	21	~~16~~	~~11~~	19	~~14~~	~~10~~
		7-20	Interior	74	70	39	74	56	33	74	45	30	70	37	27	57	33	24	47	30	22	40	28	20	32	23	17	27	20	22	24	17	19	21	15	17	18	20	~~15~~	16	18	~~13~~
			Exposed	57	33	24	45	29	22	37	26	20	33	24	18	30	22	16	27	20	22	25	18	20	21	15	17	18	20	~~15~~	15	17	~~13~~	20	~~15~~	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9
		20-27	Interior	75	75	57	75	67	45	75	53	37	75	43	33	75	36	30	75	33	27	66	30	25	49	25	21	38	22	18	32	19	15	28	16	20	25	22	18	22	19	16
			Exposed	75	36	29	74	32	26	61	29	24	51	26	21	43	23	19	37	21	18	33	19	16	28	16	21	24	21	18	21	19	~~15~~	18	16	~~13~~	16	~~14~~	~~12~~	22	~~13~~	~~10~~
		27-45	Interior	76	76	76	76	76	62	76	75	51	76	62	42	72	53	36	58	45	32	49	39	30	35	32	25	30	27	21	26	23	19	23	20	16	20	18	22	18	16	19
			Exposed	71	52	35	55	43	32	45	36	28	37	32	26	33	29	23	30	27	21	27	24	19	23	21	16	20	18	21	17	15	18	15	20	16	20	18	~~14~~	18	16	~~13~~
10	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	60	60	51	60	60	44	60	57	34	60	44	29	58	36	25	47	31	22	39	27	19	33	24	17
			Exposed	60	60	59	60	60	49	60	60	41	60	59	35	60	50	32	60	44	29	60	38	26	48	31	22	38	27	19	32	23	16	28	20	22	25	18	19	22	16	17
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	42	60	60	36	60	45	30	60	35	26	47	30	22	36	26	19	32	23	17	28	20	15
			Exposed	60	60	50	60	60	40	60	58	34	60	47	31	60	40	28	60	34	25	51	31	23	37	26	20	31	23	17	27	20	22	23	17	19	21	15	17	18	20	~~15~~
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	51	69	53	37	69	39	31	69	33	27	60	28	23	48	25	21	40	22	18
			Exposed	69	69	69	69	69	59	69	69	47	69	56	39	69	46	34	69	39	31	69	34	28	61	29	24	47	25	20	37	21	18	32	19	15	28	16	20	25	22	18
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	74	74	51	74	57	39	58	44	32	44	36	28	35	31	25	31	28	22
			Exposed	74	74	74	74	74	74	74	74	65	74	74	53	74	66	44	74	56	38	63	48	34	45	36	28	34	31	24	30	27	21	26	23	18	23	21	16	20	18	22
	C	0-7	Interior	60	60	60	60	60	53	60	60	44	60	60	38	60	55	33	60	47	30	60	41	28	52	33	23	41	28	20	34	25	17	30	21	15	26	19	20	23	17	18
			Exposed	60	55	33	60	46	30	60	39	27	54	34	24	47	31	22	40	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	15	17	~~12~~
		7-20	Interior	60	60	55	60	60	44	60	60	36	60	53	32	60	44	29	60	37	27	57	33	24	41	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	60	43	29	60	35	26	52	32	23	43	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	69	69	69	69	69	66	69	69	52	69	63	43	69	51	36	69	43	32	69	36	30	68	30	25	51	26	21	40	22	19	34	20	16	30	17	22	26	15	19
			Exposed	69	51	35	69	41	32	69	34	28	69	31	26	59	28	23	50	26	21	43	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	74	74	74	74	74	74	74	74	72	74	74	59	74	73	49	74	62	42	72	53	36	50	40	30	37	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	74	72	49	74	59	40	65	49	34	52	41	31	43	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
	D	0-7	Interior	60	60	47	60	60	39	60	56	34	60	48	31	60	41	28	59	36	25	51	33	23	39	28	20	33	24	17	28	20	22	25	18	19	22	16	17	19	21	~~15~~
			Exposed	60	41	28	57	35	25	48	31	22	41	28	20	35	26	18	32	23	16	29	21	15	25	18	19	21	15	17	18	20	~~14~~	16	18	~~13~~	21	~~16~~	~~11~~	19	~~14~~	~~10~~
		7-20	Interior	60	60	39	60	56	33	60	45	30	60	37	27	57	33	24	47	30	22	40	28	20	32	23	17	27	20	22	24	17	19	21	15	17	18	20	~~15~~	16	18	~~13~~
			Exposed	57	33	24	45	29	22	37	26	20	33	24	18	30	22	16	27	20	22	25	18	20	21	15	17	18	20	~~15~~	15	17	~~13~~	20	~~15~~	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9
		20-27	Interior	71	71	57	71	67	45	71	53	37	71	43	33	71	36	30	71	33	27	66	30	25	49	25	21	38	22	18	32	19	15	28	16	20	25	22	18	22	19	16
			Exposed	71	36	29	71	32	26	61	29	24	51	26	21	43	23	19	37	21	18	33	19	16	28	16	21	24	21	18	21	19	~~15~~	18	16	~~13~~	16	~~14~~	~~12~~	22	~~13~~	~~10~~
		27-45	Interior	75	75	75	75	75	62	75	75	51	75	62	42	72	53	36	58	45	32	49	39	30	35	32	25	30	27	21	26	23	19	23	20	16	20	18	22	18	16	19
			Exposed	71	52	35	55	43	32	45	36	28	37	32	26	33	29	23	30	27	21	27	24	19	23	21	16	20	18	21	17	15	18	15	20	16	20	18	~~14~~	18	16	~~13~~
20	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	34	44	44	29	44	36	25	44	31	22	39	27	19	33	24	17
			Exposed	44	44	44	44	44	44	44	44	41	44	44	35	44	44	32	44	44	29	44	38	26	44	31	22	38	27	19	32	23	16	28	20	22	25	18	19	22	16	17
		7-20	Interior	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	26	45	30	22	36	26	19	32	23	17	28	20	15
			Exposed	45	45	45	45	45	40	45	45	34	45	45	31	45	40	28	45	34	25	45	31	23	37	26	20	31	23	17	27	20	22	23	17	19	21	15	17	18	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	51	54	53	37	54	39	31	54	33	27	54	28	23	48	25	21	40	22	18
			Exposed	54	54	54	54	54	54	54	54	47	54	54	39	54	46	34	54	39	31	54	34	28	54	29	24	47	25	20	37	21	18	32	19	15	28	16	20	25	22	18
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	51	60	57	39	55	44	32	44	36	28	35	31	25	31	28	22
			Exposed	60	60	60	60	60	60	60	60	60	60	60	53	60	60	44	60	56	38	60	48	34	45	36	28	34	31	24	30	27	21	26	23	18	23	21	16	20	18	22
	C	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	38	44	44	33	44	44	30	44	41	28	44	33	23	41	28	20	34	25	17	30	21	15	26	19	20	23	17	18
			Exposed	44	44	33	44	44	30	44	39	27	44	34	24	44	31	22	40	28	20	35	26	18	30	22	15	25	19	20	22	16	17	19	21	~~15~~	17	19	~~13~~	15	17	~~12~~
		7-20	Interior	45	45	45	45	45	44	45	45	36	45	45	32	45	44	29	45	37	27	45	33	24	41	28	21	33	24	18	28	21	15	25	18	20	22	16	18	19	21	16
			Exposed	45	43	29	45	35	26	45	32	23	43	29	21	36	26	19	32	24	17	30	22	16	25	18	20	21	16	18	19	21	~~15~~	16	18	~~13~~	22	16	~~12~~	19	~~14~~	~~10~~
		20-27	Interior	54	54	54	54	54	54	54	54	52	54	54	43	54	51	36	54	43	32	54	36	30	54	30	25	51	26	21	40	22	19	34	20	16	30	17	22	26	15	19
			Exposed	54	51	35	54	41	32	54	34	28	54	31	26	54	28	23	50	26	21	43	23	19	34	20	16	29	17	21	25	22	18	22	19	16	19	17	~~14~~	17	~~15~~	~~13~~
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	59	60	60	49	60	60	42	58	53	36	50	40	30	37	33	26	31	28	22	27	25	19	24	22	17	21	19	15
			Exposed	60	60	49	60	59	40	60	49	34	52	41	31	43	35	28	36	32	25	33	29	23	28	25	20	24	21	17	21	18	22	18	16	19	16	22	17	21	19	~~15~~
	D	0-7	Interior	44	44	44	44	44	39	44	44	34	44	44	31	44	41	28	44	36	25	44	33	23	39	28	20	33	24	17	28	20	22	25	18	19	22	16	17	19	21	~~15~~
			Exposed	44	41	28	44	35	25	44	31	22	41	28	20	35	26	18	32	23	16	29	21	15	25	18	19	21	15	17	18	20	~~14~~	16	18	~~13~~	21	~~16~~	~~11~~	19	~~14~~	~~10~~
		7-20	Interior	45	45	39	45	45	33	45	45	30	45	37	27	45	33	24	45	30	22	40	28	20	32	23	17	27	20	22	24	17	19	21	15	17	18	20	~~15~~	16	18	~~13~~
			Exposed	45	33	24	45	29	22	37	26	20	33	24	18	30	22	16	27	20	22	25	18	20	21	15	17	18	20	~~15~~	15	17	~~13~~	20	~~15~~	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9
		20-27	Interior	57	57	57	57	57	45	57	53	37	57	43	33	57	36	30	57	33	27	57	30	25	49	25	21	38	22	18	32	19	15	28	16	20	25	22	18	22	19	16
			Exposed	57	36	29	57	32	26	57	29	24	51	26	21	43	23	19	37	21	18	33	19	16	28	16	21	24	21	18	21	19	~~15~~	18	16	~~13~~	16	~~14~~	~~12~~	22	~~13~~	~~10~~
		27-45	Interior	62	62	62	62	62	62	62	62	51	62	62	42	61	53	36	57	45	32	49	39	30	35	32	25	30	27	21	26	23	19	23	20	16	20	18	22	18	16	19
			Exposed	62	52	35	55	43	32	45	36	28	37	32	26	33	29	23	30	27	21	27	24	19	23	21	16	20	18	21	17	15	18	15	20	16	20	18	~~14~~	18	16	~~13~~

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

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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CT1
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

*	Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.
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	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	101	101	101	101	101	101	101	101	97	101	101	92	101	101	88	101	98	84	101	94	81	101	87	72	93	81	57	87	76	50	82	61	43	78	54	38	67	48	34
			Exposed	101	101	88	101	96	83	101	92	79	101	87	75	97	84	62	93	80	57	89	77	52	83	62	44	77	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		7-20	Interior	102	102	102	102	102	100	102	102	94	102	102	89	102	99	84	102	94	80	102	90	77	98	82	59	90	76	51	83	59	44	78	52	38	62	46	34	55	40	30
			Exposed	102	99	84	102	93	80	102	88	75	99	83	60	94	79	55	89	76	50	85	62	46	78	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	102	86	78	102	79	61	94	64	53	88	56	46	83	49	41	78	44	36
			Exposed	102	102	94	102	97	88	102	92	83	102	87	79	102	83	75	101	79	60	96	75	55	89	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	96	103	102	92	103	94	85	95	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	103	103	101	103	103	95	103	100	90	103	95	85	99	90	82	94	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	101	101	90	101	99	85	101	94	81	101	90	77	100	86	67	95	82	60	91	79	55	85	66	46	79	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	100	86	66	94	81	58	90	78	52	85	70	47	82	61	43	78	55	39	75	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	102	102	87	102	96	82	102	90	77	102	86	64	97	81	58	92	78	53	87	66	48	80	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	96	81	58	90	77	52	85	63	46	81	56	42	77	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	102	102	97	102	101	91	102	95	86	102	90	81	102	85	77	102	81	64	99	77	58	91	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	102	85	77	102	80	62	97	76	56	92	61	50	88	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	103	103	103	103	103	98	103	103	93	103	97	88	103	93	84	97	89	80	92	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	102	93	84	96	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	101	96	83	101	91	78	101	86	72	96	83	60	91	79	55	88	76	50	84	65	46	78	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	91	79	54	87	75	49	82	62	44	79	56	39	75	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	102	92	79	102	87	69	97	82	59	92	78	53	87	66	48	83	59	44	80	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	87	65	48	82	58	43	78	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	102	97	87	102	91	82	102	86	78	102	81	64	99	77	58	94	64	53	90	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	99	77	58	93	63	52	89	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	103	103	94	103	99	89	103	94	84	98	89	80	92	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	92	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	94	81	95	87	72	93	81	57	87	76	50	82	61	43	78	54	38	67	48	34
			Exposed	95	95	88	95	95	83	95	92	79	95	87	75	95	84	62	93	80	57	89	77	52	83	62	44	77	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		7-20	Interior	95	95	95	95	95	95	95	95	94	95	95	89	95	95	84	95	94	80	95	90	77	95	82	59	90	76	51	83	59	44	78	52	38	62	46	34	55	40	30
			Exposed	95	95	84	95	93	80	95	88	75	95	83	60	94	79	55	89	76	50	85	62	46	78	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	89	99	94	85	99	86	78	99	79	61	94	64	53	88	56	46	83	49	41	78	44	36
			Exposed	99	99	94	99	97	88	99	92	83	99	87	79	99	83	75	99	79	60	96	75	55	89	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	96	102	102	92	102	94	85	95	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	102	102	101	102	102	95	102	100	90	102	95	85	99	90	82	94	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	95	95	90	95	95	85	95	94	81	95	90	77	95	86	67	95	82	60	91	79	55	85	66	46	79	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	95	86	66	94	81	58	90	78	52	85	70	47	82	61	43	78	55	39	75	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	95	95	87	95	95	82	95	90	77	95	86	64	95	81	58	92	78	53	87	66	48	80	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	95	81	58	90	77	52	85	63	46	81	56	42	77	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	99	99	97	99	99	91	99	95	86	99	90	81	99	85	77	99	81	64	99	77	58	91	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	99	85	77	99	80	62	97	76	56	92	61	50	88	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	102	102	102	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	102	93	84	96	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	95	95	83	95	91	78	95	86	72	95	83	60	91	79	55	88	76	50	84	65	46	78	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	91	79	54	87	75	49	82	62	44	79	56	39	75	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	95	92	79	95	87	69	95	82	59	92	78	53	87	66	48	83	59	44	80	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	87	65	48	82	58	43	78	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	100	97	87	100	91	82	100	86	78	100	81	64	99	77	58	94	64	53	90	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	99	77	58	93	63	52	89	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	102	102	94	102	99	89	102	94	84	98	89	80	92	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	92	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25
20	B	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	81	85	85	72	85	81	57	85	76	50	82	61	43	78	54	38	67	48	34
			Exposed	85	85	85	85	85	83	85	85	79	85	85	75	85	84	62	85	80	57	85	77	52	83	62	44	77	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		7-20	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	85	85	77	85	82	59	85	76	51	83	59	44	78	52	38	62	46	34	55	40	30
			Exposed	85	85	84	85	85	80	85	85	75	85	83	60	85	79	55	85	76	50	85	62	46	78	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	92	85	92	86	78	92	79	61	92	64	53	88	56	46	83	49	41	78	44	36
			Exposed	92	92	92	92	92	88	92	92	83	92	87	79	92	83	75	92	79	60	92	75	55	89	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	94	85	95	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	95	95	95	95	95	95	95	95	90	95	95	85	95	90	82	94	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	85	85	85	85	85	85	85	85	81	85	85	77	85	85	67	85	82	60	85	79	55	85	66	46	79	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	85	85	66	85	81	58	85	78	52	85	70	47	82	61	43	78	55	39	75	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	85	85	85	85	85	82	85	85	77	85	85	64	85	81	58	85	78	53	85	66	48	80	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	85	81	58	85	77	52	85	63	46	81	56	42	77	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	92	92	92	92	92	91	92	92	86	92	90	81	92	85	77	92	81	64	92	77	58	91	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	92	85	77	92	80	62	92	76	56	92	61	50	88	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	95	95	95	95	95	95	95	95	93	95	95	88	95	93	84	95	89	80	92	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	95	93	84	95	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	85	85	83	85	85	78	85	85	72	85	83	60	85	79	55	85	76	50	84	65	46	78	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	85	79	54	85	75	49	82	62	44	79	56	39	75	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	85	85	79	85	85	69	85	82	59	85	78	53	85	66	48	83	59	44	80	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	85	65	48	82	58	43	78	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	93	93	87	93	91	82	93	86	78	93	81	64	93	77	58	93	64	53	90	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	93	77	58	93	63	52	89	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	96	96	94	96	96	89	96	94	84	96	89	80	92	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	92	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25

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

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	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																										
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																										
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	57	69	69	50	69	61	43	69	54	38	67	48	34
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	57	69	69	52	69	62	44	69	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		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	59	69	69	51	69	59	44	69	52	38	62	46	34	55	40	30
			Exposed	69	69	69	69	69	69	69	69	69	69	69	60	69	69	55	69	69	50	69	62	46	69	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	78	86	79	61	86	64	53	86	56	46	83	49	41	78	44	36
			Exposed	86	86	86	86	86	86	86	86	83	86	86	79	86	83	75	86	79	60	86	75	55	86	56	47	82	48	40	77	42	35	62	37	30	55	32	27	49	29	36
		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	85	90	87	78	88	81	63	82	76	55	77	62	49	61	55	43
			Exposed	90	90	90	90	90	90	90	90	90	90	90	85	90	90	82	90	86	78	90	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	67	69	69	60	69	69	55	69	66	46	69	56	40	69	48	34	58	42	30	51	37	40	45	33	36
			Exposed	69	69	66	69	69	58	69	69	52	69	69	47	69	61	43	69	55	39	69	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	64	69	69	58	69	69	53	69	66	48	69	55	41	65	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	69	69	58	69	69	52	69	63	46	69	56	42	69	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	81	86	85	77	86	81	64	86	77	58	86	60	49	84	51	42	79	44	37	68	39	32	58	34	28	52	30	38
			Exposed	86	85	77	86	80	62	86	76	56	86	61	50	86	55	46	84	51	42	81	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	90	85	77	85	79	59	78	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	90	90	84	90	88	79	90	83	75	86	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	60	69	69	55	69	69	50	69	65	46	69	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	69	69	54	69	69	49	69	62	44	69	56	39	69	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	69	69	69	69	69	69	69	69	59	69	69	53	69	66	48	69	59	44	69	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	69	65	48	69	58	43	69	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	88	88	87	88	88	82	88	86	78	88	81	64	88	77	58	88	64	53	88	59	49	83	50	41	78	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	88	77	58	88	63	52	88	56	47	84	51	42	81	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	91	91	91	91	91	89	91	91	84	91	89	80	91	85	77	88	81	64	84	78	58	77	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	91	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25
40	B	0-7	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	64	50	64	61	43	64	54	38	64	48	34
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	57	64	64	52	64	62	44	64	53	38	63	46	33	55	40	28	48	35	38	43	31	34
		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	51	65	65	51	65	59	44	63	52	38	61	46	34	55	40	30
			Exposed	65	65	65	65	65	65	65	65	65	65	65	60	65	65	55	65	65	50	65	62	46	65	52	39	61	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		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	61	74	64	53	74	56	46	72	49	41	68	44	36
			Exposed	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	60	74	74	55	74	56	47	74	48	40	74	42	35	62	37	30	55	32	27	49	29	36
		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	78	80	80	63	74	74	55	68	62	49	61	55	43
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	78	85	83	72	82	77	56	76	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	55	64	64	46	64	56	40	64	48	34	58	42	30	51	37	40	45	33	36
			Exposed	64	64	64	64	64	58	64	64	52	64	64	47	64	61	43	64	55	39	64	51	36	59	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	58	65	65	53	65	65	48	65	55	41	62	47	35	56	41	30	49	36	27	43	32	35	38	28	31
			Exposed	65	65	58	65	65	52	65	63	46	65	56	42	65	51	38	64	47	35	58	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	64	74	74	58	74	60	49	73	51	42	68	44	37	64	39	32	58	34	28	52	30	38
			Exposed	74	74	74	74	74	62	74	74	56	74	61	50	74	55	46	74	51	42	74	46	38	71	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	84	84	77	77	77	59	70	64	51	62	55	44	54	49	39	48	43	34	42	38	30
			Exposed	85	85	84	85	85	79	85	83	75	85	79	61	81	76	55	78	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	60	68	68	55	68	68	50	68	65	46	68	55	39	64	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	68	68	54	68	68	49	68	62	44	68	56	39	68	51	36	63	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	69	69	69	69	69	69	69	69	59	69	69	53	69	66	48	69	59	44	69	54	40	63	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	69	65	48	69	58	43	69	52	39	64	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	79	79	79	79	79	79	79	79	78	79	79	64	79	77	58	79	64	53	79	59	49	78	50	41	72	43	35	63	37	31	55	32	27	48	28	36	43	38	32
			Exposed	79	77	58	79	63	52	79	56	47	79	51	42	79	46	38	77	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	87	87	87	87	87	87	87	87	84	87	87	80	87	85	77	85	81	64	82	78	58	73	62	49	60	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	87	85	77	87	80	62	82	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25
50	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	50	55	55	43	55	54	38	55	48	34
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	44	55	53	38	55	46	33	55	40	28	48	35	38	43	31	34
		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	51	56	56	51	56	56	44	55	52	38	53	46	34	52	40	30
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	50	56	56	46	56	52	39	56	45	33	53	39	29	46	34	38	41	30	33	36	27	30
		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	61	65	64	53	64	56	46	61	49	41	59	44	36
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	60	65	65	55	65	56	47	65	48	40	65	42	35	62	37	30	55	32	27	49	29	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	73	73	73	68	68	63	64	64	55	61	61	49	57	55	43
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	76	76	56	73	61	48	59	53	42	51	46	36	45	41	32	40	36	29
	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	46	55	55	40	55	48	34	55	42	30	51	37	40	45	33	36
			Exposed	55	55	55	55	55	55	55	55	52	55	55	47	55	55	43	55	55	39	55	51	36	55	43	30	50	37	39	44	32	34	38	28	30	34	37	26	30	33	23
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	48	56	55	41	54	47	35	52	41	30	49	36	27	43	32	35	38	28	31
			Exposed	56	56	56	56	56	52	56	56	46	56	56	42	56	51	38	56	47	35	56	43	32	49	36	27	42	31	35	37	27	30	32	36	26	28	31	23	38	28	21
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	58	65	60	49	62	51	42	59	44	37	57	39	32	54	34	28	52	30	38
			Exposed	65	65	65	65	65	62	65	65	56	65	61	50	65	55	46	65	51	42	65	46	38	65	39	32	57	34	28	49	29	36	43	38	32	38	34	28	34	30	25
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	71	71	71	66	66	59	62	62	51	58	55	44	54	49	39	48	43	34	42	38	30
			Exposed	76	76	76	76	76	76	76	76	75	76	76	61	76	76	55	74	63	50	65	58	46	55	49	39	47	42	33	41	36	29	36	32	38	31	28	34	28	38	30
	D	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	55	59	59	50	59	59	46	59	55	39	59	47	33	55	40	29	48	35	38	43	31	33	38	28	30
			Exposed	59	59	54	59	59	49	59	59	44	59	56	39	59	51	36	59	46	33	58	42	30	49	36	38	42	31	33	36	40	28	32	35	25	28	31	22	38	27	20
		7-20	Interior	60	60	60	60	60	60	60	60	59	60	60	53	60	60	48	60	59	44	60	54	40	57	46	34	54	39	29	47	34	38	41	30	33	36	26	30	32	35	26
			Exposed	60	60	48	60	58	43	60	52	39	60	47	35	58	43	32	53	39	29	49	36	26	41	30	34	35	39	29	31	34	25	27	30	22	36	26	19	32	23	17
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	64	69	69	58	69	64	53	69	59	49	66	50	41	62	43	35	59	37	31	55	32	27	48	28	36	43	38	32
			Exposed	69	69	58	69	63	52	69	56	47	69	51	42	69	46	38	69	42	35	67	39	32	56	33	27	48	28	35	41	37	30	36	32	27	32	28	23	28	25	21
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	77	77	77	74	74	64	70	70	58	64	62	49	59	53	42	52	46	37	45	40	32	40	36	28	35	32	38
			Exposed	80	80	77	80	80	62	80	77	56	78	64	51	65	58	46	59	53	42	54	48	38	46	41	32	39	35	28	34	30	37	30	27	32	26	36	28	35	32	25

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

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	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks CTI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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

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.