

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, $k_{zt} = 1.0$
- $\gamma_E = 1.0$ for 'Interior' spans, $\gamma_E = 1.5$ 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

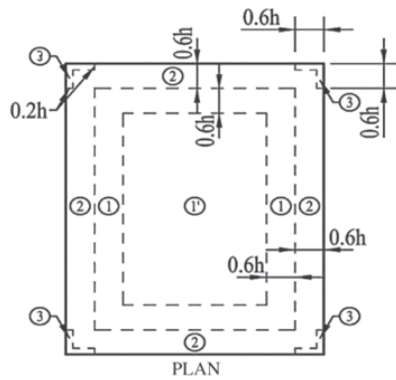
- 0.2-s Spectral Response Acceleration
- $S_s = 1.25$ and 3 with $S_{ds} = 1, 2.4$ respectively per criteria shown on individual span tables sheets.
- $S_1 = 0.5$ & $S_{d1} = 0.6$
- Seismic site class D

Array Assumptions

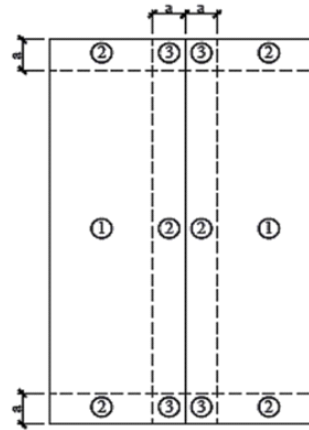
- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1" x 67" (~19 sq.ft, 47.65 lbs) and 41" x 80" (~23 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at 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

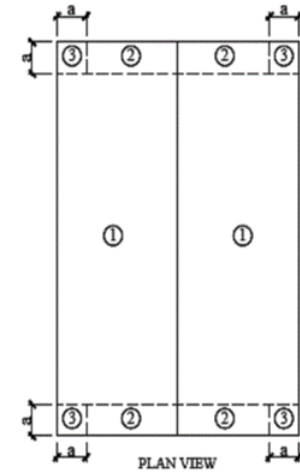
Zone should be considered as per ASCE 7-22, Fig. 30.3-2A to 30.3-2D



Gable Roofs $\theta \leq 7^\circ$

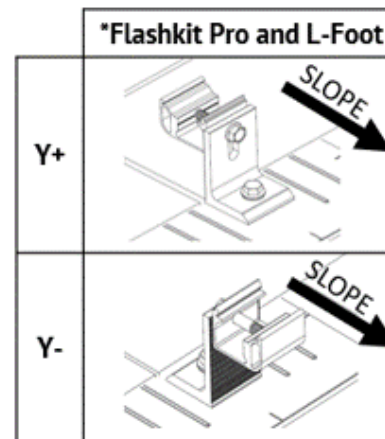


Gable Roofs $7^\circ < \theta \leq 27^\circ$



Gable Roofs $27^\circ < \theta \leq 45^\circ$

Rails can be installed in these possible orientations.



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

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

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.

[illegible]

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



ASCE 7-22
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 1.25
Seismic

19 sq.ft
Module Area

LANDSCAPE
Orientation

CROSS-SLOPE
Rail Direction

NXT
Rail Type

NXT COMBO
Clamp

L-Foot
Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																															
				90			95			100			105			110			115			120			130			140			150			160			170			180											
				Roof Wind Zone																																															
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	102	102	97	102	102	88	102	98	85	102	91	79	98	85	73	92	79	69	86	75	65	81	71	62	77	68	60													
			Exposed	102	102	92	102	101	87	102	96	83	102	92	79	102	88	76	97	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	56	68	61	52	65	58	60									
		7-20	Interior	102	102	102	102	102	102	102	102	99	102	102	94	102	102	89	102	89	102	95	81	102	87	75	95	80	70	88	75	65	82	70	62	77	66	60	73	64	57										
			Exposed	102	102	89	102	98	84	102	92	80	102	88	76	99	84	72	94	80	69	90	77	67	82	71	63	76	66	59	71	63	56	67	60	52	64	57	60	61	54	57									
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	99	103	103	94	103	99	90	103	91	82	103	84	76	99	78	71	93	73	67	87	69	64	83	65	61									
			Exposed	103	103	99	103	103	93	103	97	89	103	92	83	103	87	79	103	83	76	101	80	73	93	73	67	87	68	63	81	64	60	76	61	57	72	59	54	68	56	51									
	C	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	91	83	93	85	77	86	80	73	81	76	69	76	72	65													
			Exposed	103	103	103	103	103	103	100	103	95	103	99	90	103	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	56									
		7-20	Interior	102	102	95	102	102	90	102	99	85	102	94	81	102	90	78	100	86	75	96	83	72	89	77	67	83	72	63	78	68	60	73	65	57	70	62	54	66	59	51									
			Exposed	102	90	78	99	85	74	94	81	71	90	78	67	86	75	65	82	72	63	79	69	61	74	65	57	69	61	53	65	59	60	62	55	57	60	52	53	57	59	50									
		20-27	Interior	102	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	54	65	58	50	62	54	57	59	51	54	55	58	50	52	55	47									
			Exposed	103	103	101	103	103	77	102	80	73	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	55	69	56	51	65	53	59	62	60	55	60	57	52									
	D	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103									
			Exposed	103	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	69	63	67	64	60	64	61	56	61	59	52	58	55	60	55	52	57									
		7-20	Interior	102	100	87	102	95	82	102	91	78	100	87	75	96	83	72	92	80	69	88	77	66	82	71	63	77	67	59	72	64	56	68	61	52	65	58	60	62	55	57									
			Exposed	96	83	72	91	79	68	86	75	65	83	72	63	79	69	61	76	67	59	73	64	57	68	61	52	64	58	59	61	54	56	59	50	52	55	48	52	55	46										
		20-27	Interior	102	97	83	102	91	79	102	87	75	97	82	71	92	79	68	88	75	65	84	72	63	77	67	60	72	63	77	67	60	72	63	56	67	60	52	54	57	59	50	53								
			Exposed	92	78	68	87	74	65	82	71	63	78	67	60	75	65	59	71	63	56	69	61	54	64	57	60	61	53	56	58	60	52	54	57	49	51	53	46	49	50	42									
10	B	0-7	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103										
			Exposed	103	97	88	101	92	83	95	88	79	90	84	76	86	80	72	82	77	69	78	74	67	72	69	63	67	64	60	64	61	56	61	59	52	58	55	60	55	52	57									
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95								
			Exposed	95	95	92	95	95	87	95	95	83	95	92	79	95	88	76	95	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	56	68	61	52	65	58	60									
		20-27	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96									
			Exposed	96	96	89	96	96	84	96	92	80	96	88	76	96	84	72	94	80	69	90	77	67	82	71	63	76	66	59	71	63	56	67	60	52	64	57	60	61	54	57									
	C	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100									
			Exposed	100	100	99	100	100	93	100	97	88	100	92	83	100	87	79	100	83	76	100	80	73	93	73	67	87	68	63	81	64	60	76	61	57	72	59	54	68	56	51									
		7-20	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102								
			Exposed	102	102	102	102	102	100	102	102	95	102	99	90	102	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	56									
		20-27	Interior	95	95	95	95	95	90	95	95	85	95	94	81	95	90	78	95	86	75	95	83	72	89	77	67	83	72	63	78	68	60	73	65	57	70	62	54	66	59	51									
			Exposed	95	90	78	95	85	74	94	81	71	90	78	67	86	75	65	82	72	63	79	69	61	74	65	57	69	61	53	65	59	60	62	55	57	60	52	53	57	59	50									
	D	0-7	Interior	96	96	91	96	96	86	96	95	82	96	90	78	96	86	74	96	82	71	92	79	68	85	73	64	78	68	61	73	64	57	69	61	54	65	59	50	62	55	58									
			Exposed	96	86	74	95	81	70	90	77	67	86	73	64	82	70	62	78	67	60	75	65	59	69	61	54	65	58	50	62	54	57	59	51	54	55	58	50	52	55	47									
		7-20	Interior	100	100	100	100	100	96	100	100	90	100	95	86	100	90	82	100	86	78	100	82	75	99	78	71	95	75	68	88	69	64	82	65	61	76	62	58	72	59	54	68	52							
			Exposed	100	90	81	100	85	77	100	80	73	97	76	70	92	73	67	88	70	64	85	67	62	78	63	59	73	60	55	69	56	51	65	53	59	62	60	55	60	57	52									
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102								
			Exposed	102	102	102	102	102	100	102	102	95	102	99	90	102	95	86	99	91	82	95	87	79	87	81	73	80	75	68	75	71	64	70	67	61	66	64	59	63	61	56									
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95										
			Exposed	95	95	92	95	95	87	95	95	83	95	92	79	95	88	76	95	84	73	93	81	70	87	75	65	81	71	62	76	66	59	72	63	56	68	61	52	65	58	6									

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

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
				90						95						100						105						110						115						120						130						140						150						160						170						180																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
				Roof Wind Zone																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63

[illegible]

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



ASCE 7-22
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 1.25
Seismic

23 sq.ft
Module Area

PORTRAIT
Orientation

CROSS-SLOPE
Rail Direction

NXT
Rail Type

NXT COMBO
Clamp

L-Foot
Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
				90			95			100			105			110			115			120			130			140			150			160			170			180																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
				Roof Wind Zone																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
				1	2	3	1	2	3	1	2	3	1	2	3	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	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79

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

[illegible]

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

[illegible]

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

* Cells with an asterisk 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.

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



ASCE 7-22
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 1.25
Seismic

23 sq.ft
Module Area

LANDSCAPE
Orientation

CROSS-SLOPE
Rail Direction

NXT
Rail Type

NXT COMBO
Clamp

L-Foot
Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																														
				90												95												100												105										
				110												115												120												130										
				Roof Wind Zone																																														
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51					
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51			
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52		
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52		
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58		
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58		
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*			
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*			
	C	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51		
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51		
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52		
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52		
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58		
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58		
		27-45	Interior	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*		
			Exposed	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*	65*		
	D	0-7	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54		
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54		
		7-20	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54		
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		
		27-45	Interior	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*		
			Exposed	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*	71*		
100	B	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49			
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49		
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49		
		20-27	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55		
		27-45	Interior	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*		
			Exposed	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*	61*		
	C	0-7	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49		
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49		
		7-20	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49</							

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

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

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

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.

[illegible]

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

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
				Roof Wind Zone																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				1	2	3	1	2	3	1	2	3	1	2	3	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	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
				90						95						100						105						110						115						120						130						140						150						160						170						180																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
				Roof Wind Zone																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

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

[illegible]

* Cells with an asterisk 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.

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

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

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

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

[illegible]

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

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	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	101	101	101	96	101	101	91	101	101	87	101	97	84	101	90	78	97	84	73	91	79	68	85	74	65	81	70	62	77	67	59
			Exposed	101	101	91	101	100	86	101	95	82	101	91	79	101	87	75	96	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	55	67	60	52	64	58	59
		7-20	Interior	102	102	102	102	102	102	102	102	102	102	102	88	102	102	88	102	98	84	102	93	80	102	86	74	94	79	69	87	74	65	81	70	62	76	66	59	72	63	56
			Exposed	102	102	88	102	97	83	102	91	79	102	87	75	98	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	55	66	59	52	63	56	59	61	53	56
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	98	102	102	98	102	98	89	102	90	82	102	83	76	98	77	71	92	72	66	86	68	63	82	65	61	
			Exposed	102	102	98	102	102	92	102	96	87	102	91	82	102	86	79	102	82	75	100	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	53	68	55	50
	27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	103	103	96	103	97	88	99	90	82	92	85	76	85	79	72	80	75	68	76	71	65
		Exposed	103	103	103	103	103	99	103	103	94	103	98	89	103	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	55	
	C	0-7	Interior	101	101	94	101	101	89	101	98	84	101	93	81	101	89	77	99	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	56	69	61	53	66	59	60
			Exposed	101	89	77	98	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	53	65	58	60	62	54	56	59	61	53	56	59	59
		7-20	Interior	102	102	91	102	100	85	102	94	81	102	89	77	101	85	74	96	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	53	64	58	60	62	55	58
			Exposed	101	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	53	64	57	60	61	53	57	58	60	53	55	58	59	52	54	47
		20-27	Interior	102	102	101	102	102	95	102	99	89	102	93	85	102	89	81	102	85	77	102	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	55	69	57	52
			Exposed	102	89	81	102	84	76	101	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	54	68	56	51	64	52	58	62	59	55	59	57	51
	27-45	Interior	103	103	103	103	103	102	103	103	96	103	103	92	103	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57	
		Exposed	103	96	87	100	91	82	94	87	78	89	83	75	85	79	72	81	76	69	78	73	66	72	68	62	67	64	59	63	61	55	60	58	52	58	55	59	54	62	56	
	D	0-7	Interior	101	99	86	101	94	82	101	90	78	99	86	74	95	82	71	91	79	68	87	76	66	81	71	62	76	66	59	71	63	55	67	60	52	64	57	59	62	54	56
			Exposed	95	82	71	90	78	68	86	75	65	82	71	63	78	69	61	75	66	59	73	64	56	68	60	52	64	57	59	61	53	55	58	60	51	54	57	48	61	54	46
		7-20	Interior	102	96	82	102	90	78	102	86	74	96	81	71	91	78	68	87	74	65	83	71	63	77	66	60	71	63	56	66	60	52	63	56	59	61	53	56	58	60	53
			Exposed	91	78	67	86	74	64	81	70	62	77	67	60	74	64	58	71	62	55	68	60	53	63	57	59	60	52	55	57	59	52	53	56	48	60	53	45	58	60	44
		20-27	Interior	102	101	91	102	95	86	102	90	81	102	85	77	102	81	74	98	77	71	94	74	68	87	68	63	81	64	60	76	61	57	71	59	53	67	55	60	64	52	58
			Exposed	102	81	74	97	76	70	92	73	66	88	69	64	84	66	62	80	64	60	77	62	58	72	59	54	67	55	60	63	51	57	61	58	53	58	55	60	55	52	47
	27-45	Interior	103	103	98	103	103	93	103	97	88	102	93	84	96	88	80	92	85	77	88	81	74	81	75	68	75	70	64	70	66	61	65	63	58	63	60	55	60	58	52	
		Exposed	96	88	80	91	84	76	86	80	72	81	76	69	78	73	66	74	70	64	71	67	62	66	63	59	62	60	54	59	57	51	56	53	58	53	60	55	60	58	52	
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	90	78	95	84	73	91	79	68	85	74	65	81	70	62	77	67	59		
			Exposed	95	95	91	95	95	86	95	95	82	95	91	79	95	87	75	95	83	72	92	80	69	86	75	65	80	70	62	75	66	59	71	63	55	67	60	52	64	58	59
		7-20	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	88	95	95	84	95	93	80	95	86	74	94	79	69	87	74	65	81	70	62	76	66	59	72	63	56
			Exposed	95	95	88	95	95	83	95	91	79	95	87	75	95	83	72	93	79	69	89	76	66	81	70	62	76	65	59	71	62	55	66	59	52	63	56	59	61	53	56
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	90	82	99	83	76	98	77	71	92	72	66	86	68	63	82	65	61	
			Exposed	99	99	98	99	99	92	99	96	87	99	91	82	99	86	79	99	82	75	99	79	72	92	73	67	86	68	63	80	64	60	75	61	57	71	59	53	68	55	50
	27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	100	102	102	96	102	97	88	99	90	82	92	85	76	85	79	72	80	75	68	76	71	65		
		Exposed	102	102	102	102	102	99	102	102	94	102	98	89	102	94	85	98	90	81	94	86	78	86	80	72	79	74	67	74	70	64	69	66	61	65	63	58	63	61	55	
	C	0-7	Interior	95	95	94	95	95	89	95	95	84	95	93	81	95	89	77	99	85	74	95	82	71	88	76	66	82	72	63	77	67	60	73	64	56	69	61	53	66	59	60
			Exposed	95	89	77	95	85	73	93	81	70	89	77	67	85	74	64	82	71	62	78	69	61	73	64	57	68	61	53	65	58	60	62	54	56	59	61	53	56	59	59
		7-20	Interior	95	95	91	95	95	85	95	94	81	95	89	77	95	85	74	95	81	70	91	78	68	84	72	63	78	67	60	72	63	57	68	61	53	64	58	60	62	55	58
			Exposed	95	85	73	94	80	70	89	76	66	85	73	64	81	69	62	77	66	60	74	64	58	68	61	53	64	57	60	61	53	57	58	60	53	55	58	59	52	54	47
		20-27	Interior	99	99	99	99	99	95	99	99	89	99	93	85	99	89	81	99	85	77	99	81	74	95	75	68	88	69	64	82	65	61	77	62	58	73	60	55	69	57	52
			Exposed	99	89	81	99	84	76	99	79	72	96	75	69	91	72	66	87	69	64	84	66	62	78	62	59	73	59	54	68	56	51	64	52	58	62	59	55	59	57	51
	27-45	Interior	102	102	102	102	102	102	102	102	96	102	101	92	102	96	87	101	92	83	96	88	80	88	82	74	82	76	69	76	72	65	71	68	62	67	64	60	64	62	57	

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
				Roof Wind Zone																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				1	2	3	1	2	3	1	2	3	1	2	3	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	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76

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



ASCE 7-22
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 3.00
Seismic

23 sq.ft
Module Area

LANDSCAPE
Orientation

CROSS-SLOPE
Rail Direction

NXT
Rail Type

NXT COMBO
Clamp

L-Foot
Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
				90												95												100												105																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
				110												115												120												130																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
				Roof Wind Zone																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
				1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1			2			3			1		