Span Tables

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 7-10 Sec 30.4.2
- Exposure Category B, C, or D
- Basic Wind Speed = 90 – 180 mph
- Level terrain. Topographic factor, kzt = 1.0

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

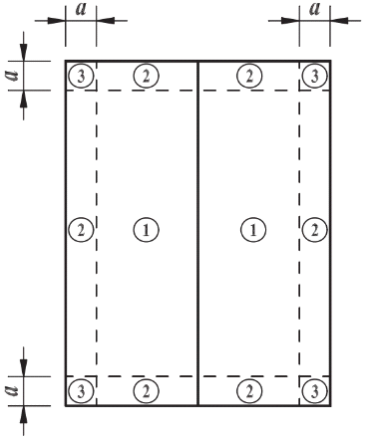
- 0.2-s Spectral Response Acceleration
- S_S = 1.25 and 3 per criteria shown on individual span tables sheets.
- S_1 = 0.5
- Seismic site class D

Array Assumptions

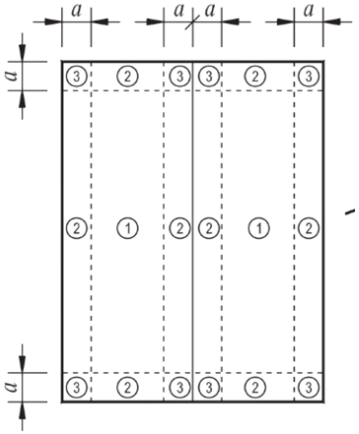
- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1” x 67” (~19 sq.ft, 47.65 lbs) and 41” x 80” (~23 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at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

Span Tables

Zone should be considered as per ASCE 7-10, Fig. 30.4-2A to 30.4-2D

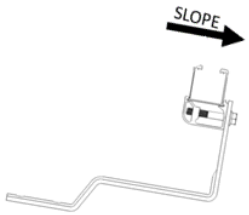


Gable Roofs θ ≤ 7°



Gable Roofs 7°< θ ≤ 45°

Rails can be installed in these possible orientations.

	*AT1
Y+	Alternate orientation not allowed
Y-	

UNIRAC

ASCE 7-10	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	86	86	72	86	86	60	86	85	51	86	80	44	86	70	40	86	62	36	86	55	33	84	45	28	73	38	24	63	33	20	54	28	18	47	25	16	41	22	14
		7-27	86	86	69	86	86	61	86	85	53	86	82	48	86	73	43	86	65	39	86	58	35	86	48	30	82	40	26	70	35	22	60	30	19	53	27	17	46	24	15
		27-45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	84	84	78	78	78	68	68	68	59	59	59	52	50	50	46	43	43	41	38	38	37	34	34
	C	0-7	86	77	42	86	66	38	86	57	34	86	50	30	84	45	28	78	40	25	71	37	23	59	31	19	50	26	17	43	23	14	37	20	19	33	18	17	29	16	15
		7-27	86	79	46	86	68	41	86	60	36	86	53	33	86	47	30	84	42	27	80	39	25	66	33	21	56	28	18	48	24	15	41	21	14	36	19	18	32	16	16
		27-45	87	87	87	86	86	86	80	80	80	74	74	74	68	68	68	63	63	63	58	57	57	50	47	47	43	40	40	38	35	35	34	30	30	30	27	27	27	24	24
	D	0-7	86	61	35	86	53	31	85	46	28	80	41	25	71	37	23	64	34	21	58	31	19	49	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	86	63	38	86	55	34	86	49	30	85	43	27	80	39	25	72	35	23	65	32	21	55	27	18	46	23	15	40	20	13	35	18	17	30	16	15	27	14	13
		27-45	83	83	83	76	76	76	69	69	69	63	63	63	58	57	57	54	51	51	49	47	47	42	39	39	37	34	34	33	29	29	29	25	25	26	22	22	23	20	20
10	B	0-7	62	62	62	62	62	60	62	62	51	62	62	44	62	62	40	62	62	36	62	55	33	62	45	28	62	38	24	62	33	20	54	28	18	47	25	16	41	22	14
		7-27	63	63	63	63	63	61	63	63	53	63	63	48	63	63	43	63	63	39	63	58	35	63	48	30	63	40	26	63	35	22	59	30	19	53	27	17	46	24	15
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	83	83	78	78	78	68	68	68	59	59	59	52	50	50	46	43	43	41	38	38	37	34	34
	C	0-7	62	62	42	62	62	38	62	57	34	62	50	30	62	45	28	62	40	25	62	37	23	59	31	19	50	26	17	43	23	14	37	20	19	33	18	17	29	16	15
		7-27	63	63	46	63	63	41	63	60	36	63	53	33	63	47	30	63	42	27	63	39	25	61	33	21	56	28	18	48	24	15	41	21	14	36	19	18	32	16	16
		27-45	86	86	86	85	85	85	80	80	80	74	74	74	68	68	68	63	63	63	58	57	57	50	47	47	43	40	40	38	35	35	34	30	30	30	27	27	27	24	24
	D	0-7	62	61	35	62	53	31	62	46	28	62	41	25	62	37	23	62	34	21	58	31	19	49	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	63	63	38	63	55	34	63	49	30	63	43	27	63	39	25	63	35	23	61	32	21	55	27	18	46	23	15	40	20	13	35	18	17	30	16	15	27	14	13
		27-45	83	83	83	76	76	76	69	69	69	63	63	63	58	57	57	54	51	51	49	47	47	42	39	39	37	34	34	33	29	29	29	25	25	26	22	22	23	20	20
20	B	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	36	43	43	33	43	43	28	43	38	24	43	33	20	43	28	18	43	25	16	41	22	14
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	35	44	44	30	44	40	26	43	35	22	41	30	19	39	27	17	38	24	15
		27-45	72	72	72	72	72	72	72	72	72	72	72	72	71	71	71	68	68	68	65	65	65	60	60	60	54	54	54	50	50	50	46	43	43	41	38	38	37	34	34
	C	0-7	43	43	42	43	43	38	43	43	34	43	43	30	43	43	28	43	40	25	43	37	23	43	31	19	43	26	17	43	23	14	37	20	19	33	18	17	29	16	15
		7-27	44	44	44	44	44	41	44	44	36	44	44	33	44	44	30	44	42	27	44	39	25	42	33	21	40	28	18	38	24	15	36	21	14	34	19	18	32	16	16
		27-45	72	72	72	70	70	70	66	66	66	63	63	63	59	59	59	56	56	56	53	53	53	48	47	47	43	40	40	38	35	35	34	30	30	30	27	27	27	24	24
	D	0-7	43	43	35	43	43	31	43	43	28	43	41	25	43	37	23	43	34	21	43	31	19	43	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	44	44	38	44	44	34	44	44	30	44	43	27	44	39	25	43	35	23	42	32	21	40	27	18	38	23	15	36	20	13	34	18	17	30	16	15	27	14	13
		27-45	70	70	70	66	66	66	62	62	62	59	59	59	55	55	55	52	51	51	49	47	47	42	39	39	37	34	34	33	29	29	29	25	25	26	22	22	23	20	20
30	B	0-7	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	42	33	42	42	28	42	38	24	42	33	20	42	28	18	42	25	16	41	22	14
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	35	44	44	30	44	40	26	43	35	22	41	30	19	39	27	17	38	24	15
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	58	58	58	56	56	56	51	51	51	48	48	48	44	44	44	41	41	41	38	38	38	35	34	34
	C	0-7	42	42	42	42	42	38	42	42	34	42	42	30	42	42	28	42	40	25	42	37	23	42	31	19	42	26	17	42	23	14	37	20	19	33	18	17	29	16	15
		7-27	44	44	44	44	44	41	44	44	36	44	44	33	44	44	30	44	42	27	44	39	25	42	33	21	40	28	18	38	24	15	36	21	14	34	19	18	32	16	16
		27-45	61	61	61	59	59	59	56	56	56	54	54	54	51	51	51	49	49	49	47	47	47	43	43	43	39	39	39	36	35	35	33	30	30	30	27	27	27	24	24
	D	0-7	43	43	35	43	43	31	43	43	28	43	41	25	43	37	23	43	34	21	43	31	19	43	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	44	44	38	44	44	34	44	44	30	44	43	27	44	39	25	43	35	23	42	32	21	40	27	18	38	23	15	36	20	13	34	18	17	30	16	15	27	14	13
		27-45	60	60	60	57	57	57	54	54	54	51	51	51	49	49	49	46	46	46	44	44	44	40	39	39	36	34	34	33	29	29	29	25	25	26	22	22	23	20	20
40	B	0-7	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	24	35	33	20	35	28	18	35	25	16	35	22	14
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	37	26	36	35	22	35	30	19	34	27	17	32	24	15
		27-45	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	50	50	48	48	48	45	45	45	42	42	42	39	39	39	37	37	37	34	34	34	32	32	32
	C	0-7	35	35	35	35	35	35	35	35	34	35	35	30	35	35	28	35	35	25	35	35	23	35	31	19	35	26	17	35	23	14	35	20	19	33	18	17	29	16	15
		7-27	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	37	37	27	37	37	25	36	33	21	34	28	18	33	24	15	31	21	14	30	19	18	29	16	16
		27-45	52	52	52	51	51	51	49	49	49	47	47	47	45	45	45	43	43	43	42	42	42	38	38	38	35	35	35	33	33	33	30	30	30	28	27	27	26	24	24
	D	0-7	37	37	35	37	37	31	37	37	28	37	37	25	37	37	23	37	34	21	37	31	19	37	26	16	37	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	40	40	38	40	40	34	40	40	30	40	40	27	40	39	25	39	35	23	38	32	21	36	27	18	34	23	15	33	20	13	31	18	17	29	16	15	27	14	13
		27-45	53	53	53	50	50	50	48	48	48	46	46	46	44	44	44	42	42	42	40	40	40	36	36	36	33	33	33	30	29	29	28	25	25	26	22	22	23	20	20
50	B	0-7	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	20	28	28	18	28	25	16	28	22	14			
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	31	22	30	30	19	29	27	17	28	24	15			
		27-45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	43	43	43	40	40	40	38	38	38	36	36	36	34	34	34	32	32	32	30	30	30
	C	0-7	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	19	28	26	17	28	23	14	28	20	19	28	18	17			
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	31	25	31	31	21	30	28	18	28	24	15	27	21	14	26	19	18			
		27-45	46	46	46	45	45	45	43	43	43	42	42	42	40	40	40	39	39	39	38	38	38	35	35	35	32	32	32	30	30	30	28	28	28	26	26	26			
	D	0-7	31	31	31	31	31	31	31	31	28	31	31	25	31	31	23	31	31	21	31	31	19	31	26	16	31	22	14	31	19	18	31	17	16	27	15	14			
		7-27	34	34	34	34	34	34	34	34	30	34	34	27	34	34	25	34	34	23	33	32	21	32	27	18	30	23	15	29	20	13	28	18	17	26	16	15			
		27-45	47	47	47	45	45	45	43	43	43	41	41	41	40	40	40	38	38	38	36	36	36	33	33	33	31	31	31	28	28	28	26	25	25	24	22	22			

* 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 7-10	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	18	24	24	16	24	22	14
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	26	17	25	24	15
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40	39	39	39	37	37	37	35	35	35	33	33	33	31	31	31	29	29	29	27	27	27
	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	19	24	24	17	24	23	14	24	20	19	24	18	17	24	16	15
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	26	18	25	24	15	24	21	14	23	19	18	23	16	16
		27-45	41	41	41	40	40	40	39	39	39	38	38	38	37	37	37	35	35	35	34	34	34	32	32	32	30	30	30	28	28	28	26	26	26	24	24	24	23	23	23
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	19	26	26	16	26	22	14	26	19	18	26	17	16	26	15	14	24	13	~~12~~
		7-27	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	29	23	29	29	21	28	27	18	27	23	15	26	20	13	25	18	17	24	16	15	23	14	13
		27-45	42	42	42	41	41	41	39	39	39	38	38	38	36	36	36	35	35	35	34	34	34	31	31	31	29	29	29	27	27	27	25	25	25	23	22	22	21	20	20
70	B	0-7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	14
		7-27	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	22	22	17	22	22	15
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	36	35	35	35	33	33	33	32	32	32	30	30	30	29	29	29	27	27	27	26	26	26
	C	0-7	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	21	14	21	20	19	21	18	17	21	16	15
		7-27	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	15	22	21	14	21	19	18	20	16	16
		27-45	37	37	37	36	36	36	35	35	35	34	34	34	33	33	33	32	32	32	31	31	31	29	29	29	28	28	28	26	26	26	24	24	24	23	23	23	21	21	21
	D	0-7	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	23	16	23	22	14	23	19	18	23	17	16	23	15	14	23	13	~~12~~
		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	18	24	23	15	23	20	13	22	18	17	22	16	15	21	14	13
		27-45	38	38	38	37	37	37	36	36	36	35	35	35	33	33	33	32	32	32	31	31	31	29	29	29	27	27	27	25	25	25	23	23	23	22	22	22	20	20	20
80	B	0-7	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	16	18	18	14
		7-27	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	20	20	15
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	32	32	32	31	31	31	29	29	29	28	28	28	27	27	27	25	25	25	24	24	24
	C	0-7	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	14	18	18	19	18	18	17	18	16	15
		7-27	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15	20	20	14	19	19	18	19	16	16	19	16	16
		27-45	34	34	34	33	33	33	32	32	32	32	32	32	31	31	31	30	30	30	29	29	29	27	27	27	26	26	26	24	24	24	23	23	23	22	22	22	20	20	20
	D	0-7	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	14	20	19	18	20	17	16	20	15	14	20	13	~~12~~
		7-27	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	15	21	20	13	20	18	17	20	16	15	19	14	13
		27-45	35	35	35	34	34	34	33	33	33	32	32	32	31	31	31	30	30	30	29	29	29	27	27	27	25	25	25	24	24	24	22	22	22	21	21	21	19	19	19
90	B	0-7	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14
		7-27	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
		27-45	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	25	24	24	24	23	23	23
	C	0-7	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	14	16	16	19	16	16	17	16	16	15
		7-27	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	14	18	18	18	17	16	16
		27-45	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	28	28	28	27	27	27	26	26	26	24	24	24	23	23	23	22	22	22	20	20	20	19	19	19
	D	0-7	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	14	18	18	18	18	17	16	18	15	14	18	13	~~12~~
		7-27	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	19	13	19	18	17	18	16	15	18	14	13
		27-45	32	32	32	32	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	25	25	25	24	24	24	22	22	22	21	21	21	20	20	20	18	18	18
100	B	0-7	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
		7-27	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
		27-45	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	22	21	21	21
	C	0-7	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	19	14	14	17	14	14	15
		7-27	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	14	16	16	18	16	16	16
		27-45	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	25	25	25	24	24	24	23	23	23	22	22	22	20	20	20	19	19	19	18	18	18
	D	0-7	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	18	16	16	16	16	15	14	16	13	~~12~~
		7-27	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	17	17	17	17	16	15	16	14	13
		27-45	30	30	30	29	29	29	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24	23	23	23	21	21	21	20	20	20	19	19	19	18	18	18

* 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 7-10	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	102	102	96	102	102	91	102	102	87	102	98	83	102	94	68	102	91	60	102	88	55	100	81	47	95	64	40	90	55	35	86	48	30	80	42	27	70	37	24
		7-27	102	102	93	102	102	89	102	102	86	102	99	83	102	95	73	102	92	65	102	88	59	102	83	50	98	68	43	93	58	37	89	51	33	85	45	29	79	40	25
		27-45	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	101	101	99	99	99	94	93	93	90	88	88	86	84	84	78	74	74	69	64	64	62	57	57
	C	0-7	102	97	81	102	93	63	102	89	57	102	85	51	100	80	46	97	69	42	94	62	39	88	52	33	83	45	28	72	39	24	63	34	21	55	30	28	49	26	25
		7-27	102	97	80	102	93	69	102	89	61	102	86	55	102	83	50	100	74	46	97	65	42	91	55	35	86	47	30	82	41	26	70	36	23	61	31	31	54	28	27
		27-45	103	103	103	102	102	102	99	99	99	97	96	96	94	93	93	92	90	90	89	87	87	84	81	81	73	68	68	64	58	58	57	51	51	50	45	45	45	40	40
	D	0-7	102	90	59	102	86	53	101	83	48	97	71	43	94	62	39	91	56	36	88	52	32	83	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	102	91	64	102	87	57	102	84	51	101	75	46	97	66	42	94	60	38	91	55	35	86	46	30	79	40	25	67	34	22	58	30	29	51	26	26	45	23	23
		27-45	101	101	101	98	98	98	95	94	94	92	90	90	90	87	87	87	84	84	84	80	80	72	66	66	62	56	56	55	49	49	48	43	43	43	38	38	39	33	33
10	B	0-7	91	91	91	91	91	91	91	91	87	91	91	83	91	91	68	91	91	60	91	88	55	91	81	47	91	64	40	90	55	35	86	48	30	80	42	27	70	37	24
		7-27	91	91	91	91	91	89	91	91	86	91	91	83	91	91	73	91	91	65	91	88	59	91	83	50	91	68	43	91	58	37	89	51	33	85	45	29	79	40	25
		27-45	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	101	101	99	99	99	94	93	93	90	88	88	86	84	84	78	74	74	69	64	64	62	57	57
	C	0-7	91	91	81	91	91	63	91	89	57	91	85	51	91	80	46	91	69	42	91	62	39	88	52	33	83	45	28	72	39	24	63	34	21	55	30	28	49	26	25
		7-27	91	91	80	91	91	69	91	89	61	91	86	55	91	83	50	91	74	46	91	65	42	91	55	35	86	47	30	82	41	26	70	36	23	61	31	31	54	28	27
		27-45	102	102	102	102	102	102	99	99	99	97	96	96	94	93	93	92	90	90	89	87	87	84	81	81	73	68	68	64	58	58	57	51	51	50	45	45	45	40	40
	D	0-7	91	90	59	91	86	53	91	83	48	91	71	43	91	62	39	91	56	36	88	52	32	83	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	91	91	64	91	87	57	91	84	51	91	75	46	91	66	42	91	60	38	91	55	35	86	46	30	79	40	25	67	34	22	58	30	29	51	26	26	45	23	23
		27-45	101	101	101	98	98	98	95	94	94	92	90	90	90	87	87	87	84	84	84	80	80	72	66	66	62	56	56	55	49	49	48	43	43	43	38	38	39	33	33
20	B	0-7	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	72	72	60	72	72	55	72	72	47	72	64	40	72	55	35	72	48	30	72	42	27	70	37	24
		7-27	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	65	73	73	59	73	73	50	73	68	43	72	58	37	69	51	33	66	45	29	63	40	25
		27-45	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	94	94	93	93	93	90	90	90	88	88	88	84	84	84	77	74	74	69	64	64	62	57	57
	C	0-7	72	72	72	72	72	63	72	72	57	72	72	51	72	72	46	72	69	42	72	62	39	72	52	33	72	45	28	72	39	24	63	34	21	55	30	28	49	26	25
		7-27	73	73	73	73	73	69	73	73	61	73	73	55	73	73	50	73	73	46	73	65	42	71	55	35	67	47	30	64	41	26	61	36	23	57	31	31	54	28	27
		27-45	96	96	96	95	95	95	93	93	93	92	92	92	90	90	90	89	89	89	87	87	87	81	81	81	73	68	68	64	58	58	57	51	51	50	45	45	45	40	40
	D	0-7	72	72	59	72	72	53	72	72	48	72	71	43	72	62	39	72	56	36	72	52	32	72	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	73	73	64	73	73	57	73	73	51	73	73	46	73	66	42	73	60	38	71	55	35	67	46	30	63	40	25	60	34	22	56	30	29	51	26	26	45	23	23
		27-45	95	95	95	93	93	93	91	91	91	90	90	90	88	87	87	86	84	84	83	80	80	72	66	66	62	56	56	55	49	49	48	43	43	43	38	38	39	33	33
30	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	60	70	70	55	70	70	47	70	64	40	70	55	35	70	48	30	70	42	27	70	37	24
		7-27	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	65	73	73	59	73	73	50	73	68	43	72	58	37	69	51	33	66	45	29	63	40	25
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	89	89	88	88	88	85	85	85	80	80	80	74	74	74	68	68	68	63	63	63	59	57	57
	C	0-7	70	70	70	70	70	63	70	70	57	70	70	51	70	70	46	70	69	42	70	62	39	70	52	33	70	45	28	70	39	24	63	34	21	55	30	28	49	26	25
		7-27	73	73	73	73	73	69	73	73	61	73	73	55	73	73	50	73	73	46	73	65	42	71	55	35	67	47	30	64	41	26	61	36	23	57	31	31	54	28	27
		27-45	90	90	90	90	90	90	88	88	88	87	87	87	85	85	85	83	83	83	79	79	79	72	72	72	65	65	65	60	58	58	55	51	51	50	45	45	45	40	40
	D	0-7	72	72	59	72	72	53	72	72	48	72	71	43	72	62	39	72	56	36	72	52	32	72	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	73	73	64	73	73	57	73	73	51	73	73	46	73	66	42	73	60	38	71	55	35	67	46	30	63	40	25	60	34	22	56	30	29	51	26	26	45	23	23
		27-45	90	90	90	89	89	89	87	87	87	85	85	85	82	82	82	78	78	78	74	74	74	67	66	66	60	56	56	55	49	49	48	43	43	43	38	38	39	33	33
40	B	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	47	58	58	40	58	55	35	58	48	30	58	42	27	58	37	24
		7-27	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	50	62	62	43	61	58	37	59	51	33	56	45	29	54	40	25
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	84	84	82	82	82	76	76	76	71	71	71	66	66	66	62	62	62	58	58	58	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	57	58	58	51	58	58	46	58	58	42	58	58	39	58	52	33	58	45	28	58	39	24	58	34	21	55	30	28	49	26	25
		7-27	62	62	62	62	62	62	62	62	61	62	62	55	62	62	50	62	62	46	62	62	42	60	55	35	57	47	30	55	41	26	53	36	23	50	31	31	48	28	27
		27-45	86	86	86	85	85	85	82	82	82	79	79	79	76	76	76	73	73	73	70	70	70	64	64	64	59	59	59	55	55	55	51	51	51	47	45	45	43	40	40
	D	0-7	63	63	59	63	63	53	63	63	48	63	63	43	63	62	39	63	56	36	63	52	32	63	44	27	63	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	66	66	64	66	66	57	66	66	51	66	66	46	66	66	42	65	60	38	64	55	35	61	46	30	58	40	25	55	34	22	52	30	29	49	26	26	45	23	23
		27-45	86	86	86	84	84	84	81	81	81	77	77	77	73	73	73	70	70	70	67	67	67	61	61	61	56	56	56	51	49	49	47	43	43	43	38	38	39	33	33
50	B	0-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	40	48	48	35	48	48	30	48	42	27	48	37	24
		7-27	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	43	52	52	37	51	51	33	49	45	29	47	40	25
		27-45	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	74	74	72	72	72	68	68	68	64	64	64	60	60	60	56	56	56	53	53	53	50	50	50
	C	0-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	48	39	48	48	33	48	45	28	48	39	24	48	34	21	48	30	28	47	26	25
		7-27	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	46	52	52	42	52	52	35	50	47	30	48	41	26	46	36	23	44	31	31	42	28	27
		27-45	77	77	77	75	75	75	73	73	73	70	70	70	68	68	68	65	65	65	63	63	63	58	58	58	54	54	54	50	50	50	47	47	47	44	44	44	41	40	40
	D	0-7	53	53	53	53	53	53	53	53	48	53	53	43	53	53	39	53	53	36	53	52	32	53	44	27	53	37	24	53	32	31	51	28	27	46	25	24	41	22	21
		7-27	57	57	57	57	57	57	57	57	51	57	57	46	57	57	42	56	56	38	55	55	35	53	46	30	51	40	25	48	34	22	46	30	29	44	26	26	42	23	23
		27-45	79	79	79	75	75	75	72	72	72	69	69	69	66	66	66	64	64	64	61	61	61	56	56	56	52	52	52	48	48	48	44	43	43	40	38	38	37	33	33

* 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 7-10	II	30 ft	Ss = 1.25	18.66 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	30	40	40	27	40	37	24
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	37	44	44	33	43	43	29	42	40	25
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	66	66	66	65	65	65	61	61	61	58	58	58	55	55	55	52	52	52	49	49	49	46	46	46
	C	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	33	40	40	28	40	39	24	40	34	21	40	30	28	40	26	25
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	35	44	44	30	42	41	26	41	36	23	39	31	31	38	28	27
		27-45	69	69	69	67	67	67	65	65	65	63	63	63	61	61	61	59	59	59	57	57	57	54	54	54	50	50	50	47	47	47	44	44	44	41	41	41	38	38	38
	D	0-7	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	36	44	44	32	44	44	27	44	37	24	44	32	31	44	28	27	44	25	24	41	22	21
		7-27	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	48	38	48	48	35	47	46	30	45	40	25	43	34	22	42	30	29	40	26	26	38	23	23
		27-45	71	71	71	68	68	68	65	65	65	63	63	63	61	61	61	58	58	58	56	56	56	52	52	52	48	48	48	45	45	45	41	41	41	38	38	38	36	33	33
70	B	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	27	35	35	24
		7-27	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	33	38	38	29	38	38	25
		27-45	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	60	60	59	59	59	56	56	56	53	53	53	51	51	51	48	48	48	45	45	45	43	43	43
	C	0-7	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	24	35	34	21	35	30	28	35	26	25
		7-27	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	30	38	38	26	37	36	23	36	31	31	34	28	27
		27-45	62	62	62	61	61	61	59	59	59	58	58	58	56	56	56	54	54	54	53	53	53	49	49	49	46	46	46	44	44	44	41	41	41	38	38	38	36	36	36
	D	0-7	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	32	38	38	27	38	37	24	38	32	31	38	28	27	38	25	24	38	22	21
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	35	42	42	30	41	40	25	39	34	22	38	30	29	36	26	26	35	23	23
		27-45	64	64	64	62	62	62	60	60	60	58	58	58	56	56	56	54	54	54	52	52	52	48	48	48	45	45	45	42	42	42	39	39	39	36	36	36	34	33	33
80	B	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24
		7-27	33	33	33	33	33	33	33	33	33	33	33	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	25
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	54	54	54	52	52	52	49	49	49	47	47	47	45	45	45	42	42	42	40	40	40
	C	0-7	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	24	30	30	21	30	30	28	30	26	25
		7-27	33	33	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	32	31	31	32	28	27
		27-45	56	56	56	56	56	56	54	54	54	53	53	53	51	51	51	50	50	50	49	49	49	46	46	46	43	43	43	41	41	41	38	38	38	36	36	36	34	34	34
	D	0-7	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	27	34	34	24	34	32	31	34	28	27	34	25	24	34	22	21
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	37	25	36	34	22	35	30	29	33	26	26	32	23	23
		27-45	59	59	59	57	57	57	55	55	55	54	54	54	52	52	52	50	50	50	49	49	49	45	45	45	42	42	42	40	40	40	37	37	37	35	35	35	32	32	32
90	B	0-7	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	27	27	27	24
		7-27	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	25
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	48	48	48	46	46	46	44	44	44	42	42	42	40	40	40	38	38	38
	C	0-7	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	21	27	27	28	27	26	25
		7-27	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	26	30	30	23	30	30	31	29	28	27
		27-45	51	51	51	51	51	51	50	50	50	49	49	49	48	48	48	46	46	46	45	45	45	43	43	43	41	41	41	38	38	38	36	36	36	34	34	34	32	32	32
	D	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	31	30	28	27	30	25	24	30	22	21
		7-27	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	25	33	33	22	32	30	29	31	26	26	30	23	23
		27-45	54	54	54	53	53	53	51	51	51	50	50	50	48	48	48	47	47	47	45	45	45	43	43	43	40	40	40	38	38	38	35	35	35	33	33	33	31	31	31
100	B	0-7	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24
		7-27	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	27	27	27	27	25
		27-45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	43	43	43	41	41	41	39	39	39	37	37	37	36	36	36
	C	0-7	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	28	25	25	25
		7-27	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	27	27	23	27	27	31	27	27	27
		27-45	46	46	46	46	46	46	46	46	46	45	45	45	44	44	44	43	43	43	42	42	42	40	40	40	38	38	38	36	36	36	34	34	34	33	33	33	31	31	31
	D	0-7	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	31	27	27	27	27	25	24	27	22	21
		7-27	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	25	30	30	22	29	29	29	29	26	26	28	23	23
		27-45	51	51	51	49	49	49	48	48	48	47	47	47	45	45	45	44	44	44	43	43	43	40	40	40	38	38	38	36	36	36	34	34	34	31	31	31	30	30	30

* 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 7-10	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	74	74	60	74	74	50	74	74	43	74	67	37	74	59	33	74	52	30	74	46	27	73	37	23	61	32	20	52	27	17	45	24	15	39	21	13	35	19	18
		7-27	74	74	58	74	74	51	74	74	45	74	68	40	74	61	36	74	54	32	74	49	30	74	40	25	69	33	21	59	29	18	51	25	16	44	22	14	39	20	19
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	71	71	71	66	66	66	57	57	57	50	49	49	44	42	42	39	36	36	34	32	32	31	28	28
	C	0-7	74	64	35	74	55	31	74	48	28	74	42	25	73	37	23	66	34	21	59	31	19	49	26	16	42	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	74	66	38	74	57	34	74	50	30	74	44	27	74	40	25	74	35	23	67	32	21	55	27	17	47	23	15	40	20	13	35	18	17	30	15	15	27	14	13
		27-45	76	76	76	73	73	73	67	67	67	62	62	62	57	57	57	52	52	52	48	47	47	42	39	39	36	33	33	32	29	29	28	25	25	25	22	22	23	20	20
	D	0-7	74	51	30	74	44	26	74	38	24	67	34	21	60	31	19	54	28	18	49	26	16	41	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	74	53	32	74	46	28	74	41	25	74	36	23	67	33	21	60	30	19	55	27	17	46	23	15	39	20	19	33	17	16	29	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	70	70	70	63	63	63	58	58	58	53	53	53	49	48	48	45	43	43	41	39	39	35	33	33	31	28	28	27	24	24	24	21	21	21	19	19	19	17	17
10	B	0-7	52	52	52	52	52	50	52	52	43	52	52	37	52	52	33	52	52	30	52	46	27	52	37	23	52	32	20	52	27	17	45	24	15	39	21	13	35	19	18
		7-27	52	52	52	52	52	51	52	52	45	52	52	40	52	52	36	52	52	32	52	49	30	52	40	25	52	33	21	52	29	18	49	25	16	44	22	14	39	20	19
		27-45	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	70	70	66	66	66	57	57	57	50	49	49	44	42	42	39	36	36	34	32	32	31	28	28
	C	0-7	52	52	35	52	52	31	52	48	28	52	42	25	52	37	23	52	34	21	52	31	19	49	26	16	42	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	52	52	38	52	52	34	52	50	30	52	44	27	52	40	25	52	35	23	52	32	21	51	27	17	47	23	15	40	20	13	35	18	17	30	15	15	27	14	13
		27-45	74	74	74	72	72	72	67	67	67	62	62	62	57	57	57	52	52	52	48	47	47	42	39	39	36	33	33	32	29	29	28	25	25	25	22	22	23	20	20
	D	0-7	52	51	30	52	44	26	52	38	24	52	34	21	52	31	19	52	28	18	49	26	16	41	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	52	52	32	52	46	28	52	41	25	52	36	23	52	33	21	52	30	19	51	27	17	46	23	15	39	20	19	33	17	16	29	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	70	70	70	63	63	63	58	58	58	53	53	53	49	48	48	45	43	43	41	39	39	35	33	33	31	28	28	27	24	24	24	21	21	21	19	19	19	17	17
20	B	0-7	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	36	23	36	32	20	36	27	17	36	24	15	36	21	13	35	19	18
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32	37	37	30	37	37	25	37	33	21	36	29	18	34	25	16	33	22	14	31	20	19
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	57	57	55	55	55	50	50	50	46	46	46	42	42	42	38	36	36	34	32	32	31	28	28
	C	0-7	36	36	35	36	36	31	36	36	28	36	36	25	36	36	23	36	34	21	36	31	19	36	26	16	36	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	37	37	37	37	37	34	37	37	30	37	37	27	37	37	25	37	35	23	37	32	21	35	27	17	33	23	15	32	20	13	30	18	17	29	15	15	27	14	13
		27-45	60	60	60	58	58	58	55	55	55	52	52	52	50	50	50	47	47	47	45	45	45	40	39	39	36	33	33	32	29	29	28	25	25	25	22	22	23	20	20
	D	0-7	36	36	30	36	36	26	36	36	24	36	34	21	36	31	19	36	28	18	36	26	16	36	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	37	37	32	37	37	28	37	37	25	37	36	23	37	33	21	36	30	19	35	27	17	33	23	15	31	20	19	30	17	16	28	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	59	59	59	55	55	55	52	52	52	49	49	49	46	46	46	44	43	43	41	39	39	35	33	33	31	28	28	27	24	24	24	21	21	21	19	19	19	17	17
30	B	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	23	35	32	20	35	27	17	35	24	15	35	21	13	35	19	18
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32	37	37	30	37	37	25	37	33	21	36	29	18	34	25	16	33	22	14	31	20	19
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	48	48	48	47	47	47	43	43	43	40	40	40	37	37	37	34	34	34	32	32	32	29	28	28
	C	0-7	35	35	35	35	35	31	35	35	28	35	35	25	35	35	23	35	34	21	35	31	19	35	26	16	35	22	14	35	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	37	37	37	37	37	34	37	37	30	37	37	27	37	37	25	37	35	23	37	32	21	35	27	17	33	23	15	32	20	13	30	18	17	29	15	15	27	14	13
		27-45	51	51	51	49	49	49	47	47	47	45	45	45	43	43	43	41	41	41	39	39	39	36	36	36	33	33	33	30	29	29	27	25	25	25	22	22	23	20	20
	D	0-7	36	36	30	36	36	26	36	36	24	36	34	21	36	31	19	36	28	18	36	26	16	36	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	37	37	32	37	37	28	37	37	25	37	36	23	37	33	21	36	30	19	35	27	17	33	23	15	31	20	19	30	17	16	28	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	50	50	50	48	48	48	45	45	45	43	43	43	41	41	41	39	39	39	37	37	37	33	33	33	30	28	28	27	24	24	24	21	21	21	19	19	19	17	17
40	B	0-7	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	29	20	29	27	17	29	24	15	29	21	13	29	19	18
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	31	21	30	29	18	29	25	16	28	22	14	27	20	19
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	42	42	42	41	41	41	38	38	38	35	35	35	33	33	33	31	31	31	29	29	29	27	27	27
	C	0-7	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	29	21	29	29	19	29	26	16	29	22	14	29	19	18	29	17	16	27	15	14	24	13	~~12~~
		7-27	31	31	31	31	31	31	31	31	30	31	31	27	31	31	25	31	31	23	31	31	21	30	27	17	29	23	15	27	20	13	26	18	17	25	15	15	24	14	13
		27-45	44	44	44	43	43	43	41	41	41	39	39	39	38	38	38	36	36	36	35	35	35	32	32	32	30	30	30	27	27	27	25	25	25	23	22	22	22	20	20
	D	0-7	31	31	30	31	31	26	31	31	24	31	31	21	31	31	19	31	28	18	31	26	16	31	22	14	31	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	33	33	32	33	33	28	33	33	25	33	33	23	33	33	21	33	30	19	32	27	17	30	23	15	29	20	19	27	17	16	26	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	44	44	44	42	42	42	40	40	40	38	38	38	37	37	37	35	35	35	33	33	33	30	30	30	28	28	28	25	24	24	23	21	21	21	19	19	19	17	17
50	B	0-7	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	24	15	24	21	13	24	19	18
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	26	18	25	25	16	24	22	14	24	20	19			
		27-45	39	39	39	39	39	39	39	39	39	39	39	39	38	38	38	37	37	37	36	36	36	34	34	34	32	32	32	30	30	30	28	28	28	26	26	26	25	25	25
	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	16	24	22	14	24	19	18	24	17	16	24	15	14	23	13	~~12~~
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	17	25	23	15	24	20	13	23	18	17	22	15	15	21	14	13
		27-45	39	39	39	38	38	38	36	36	36	35	35	35	34	34	34	33	33	33	31	31	31	29	29	29	27	27	27	25	25	25	23	23	23	22	22	22	20	20	20
	D	0-7	26	26	26	26	26	26	26	26	24	26	26	21	26	26	19	26	26	18	26	26	16	26	22	14	26	18	18	26	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	28	19	28	27	17	26	23	15	25	20	19	24	17	16	23	15	14	22	13	~~13~~	21	17	~~11~~
		27-45	39	39	39	38	38	38	36	36	36	34	34	34	33	33	33	32	32	32	30	30	30	28	28	28	26	26	26	24	24	24	22	21	21	20	19	19	19	17	17

* 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 7-10	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	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	20	13	20	19	18
		7-27	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	21	14	21	20	19
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	32	32	32	31	31	31	29	29	29	27	27	27	26	26	26	24	24	24	23	23	23
	C	0-7	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	14	20	19	18	20	17	16	20	15	14	20	13	12
		7-27	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	17	22	22	15	21	20	13	20	18	17	20	15	15	19	14	13
		27-45	34	34	34	34	34	34	33	33	33	32	32	32	31	31	31	30	30	30	29	29	29	27	27	27	25	25	25	23	23	23	22	22	22	20	20	20	19	19	19
	D	0-7	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	22	14	22	18	18	22	16	15	22	14	13	22	19	12	20	16	10
		7-27	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	17	23	23	15	22	20	19	22	17	16	21	15	14	20	13	13	19	17	11
		27-45	35	35	35	34	34	34	33	33	33	31	31	31	30	30	30	29	29	29	28	28	28	26	26	26	24	24	24	22	22	22	20	20	20	19	19	19	18	17	17
70	B	0-7	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	17	18
		7-27	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	14	19	19	19
		27-45	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	25	24	24	24	23	23	23	21	21	21
	C	0-7	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	18	17	17	16	17	15	14	17	13	12
		7-27	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15	19	19	13	18	18	17	18	15	15	17	14	13			
		27-45	31	31	31	30	30	30	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	23	23	23	22	22	22	20	20	20	19	19	19	18	18	18
	D	0-7	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	18	18	19	16	15	19	14	13	19	19	12	19	16	10
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	20	20	19	19	17	16	19	15	14	18	13	13	17	17	11
		27-45	32	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26	24	24	24	22	22	22	21	21	21	19	19	19	18	18	18	17	17	17
80	B	0-7	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	13	15	15	18
		7-27	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	19
		27-45	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	27	27	26	26	26	24	24	24	23	23	23	22	22	22	21	21	21	20	20	20
	C	0-7	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	18	15	15	16	15	15	14	15	13	12
		7-27	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	17	16	15	15	16	14	13
		27-45	28	28	28	28	28	28	27	27	27	26	26	26	26	26	26	25	25	25	24	24	24	23	23	23	22	22	22	20	20	20	19	19	19	18	18	18	17	17	17
	D	0-7	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	18	17	16	15	17	14	13	17	19	12	17	16	10
		7-27	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	19	18	17	16	17	15	14	16	13	13	16	17	11
		27-45	29	29	29	28	28	28	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24	23	23	23	21	21	21	20	20	20	18	18	18	17	17	17	16	16	16
90	B	0-7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	18
		7-27	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	19
		27-45	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	20	20	20	19	19	19
	C	0-7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	18	13	13	16	13	13	14	13	13	12
		7-27	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	17	15	15	15	14	14	13
		27-45	25	25	25	25	25	25	25	25	25	24	24	24	24	24	24	23	23	23	22	22	22	21	21	21	20	20	20	19	19	19	18	18	18	17	17	17	16	16	16
	D	0-7	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	14	15	15	18	15	15	15	15	14	13	15	19	12	15	16	10
		7-27	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	19	16	16	16	16	15	14	15	13	13	15	17	11
		27-45	27	27	27	26	26	26	26	26	26	25	25	25	24	24	24	23	23	23	23	23	23	21	21	21	20	20	20	19	19	19	17	17	17	16	16	16	15	15	15
100	B	0-7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18
		7-27	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19
		27-45	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	19	19	19	18	18	18
	C	0-7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	16	12	12	14	12	12	12
		7-27	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	15	13	13	17	13	13	15	13	13	13
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	21	20	20	20	19	19	19	18	18	18	17	17	17	16	16	16	15	15	15
	D	0-7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	18	13	13	15	13	13	13	13	19	12	13	16	10
		7-27	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	19	15	15	16	15	15	14	14	13	13	14	17	11
		27-45	25	25	25	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	21	21	21	20	20	20	19	19	19	18	18	18	17	17	17	16	16	16	15	15	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 7-10	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	101	101	95	101	101	91	101	101	86	101	98	82	101	94	65	101	90	59	101	87	54	99	78	46	94	62	39	89	54	34	85	47	30	78	41	26	69	37	23
		7-27	102	102	92	102	102	89	102	102	85	102	98	81	102	94	71	102	91	64	102	88	58	102	82	49	98	66	42	93	57	36	88	50	32	84	44	28	77	39	25
		27-45	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	100	100	98	98	98	94	92	92	90	87	87	85	83	83	76	72	72	68	62	62	61	55	55
	C	0-7	101	96	76	101	92	62	101	88	56	101	84	50	99	77	45	96	67	41	93	60	38	87	51	32	83	44	27	71	38	24	61	33	31	54	29	28	48	26	25
		7-27	102	97	78	102	92	67	102	89	60	102	85	54	102	82	49	100	72	45	96	64	41	91	54	35	86	46	30	80	40	26	68	35	34	60	31	30	53	27	27
		27-45	103	103	103	102	102	102	99	99	99	96	96	96	93	92	92	91	89	89	89	86	86	82	79	79	71	66	66	62	57	57	55	50	50	49	44	44	44	39	39
	D	0-7	101	90	58	101	86	52	100	81	47	96	68	42	93	61	38	90	55	35	87	51	32	81	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	21
		7-27	102	90	63	102	86	56	102	83	50	100	73	45	97	64	41	93	58	37	90	53	34	85	45	29	77	39	25	65	33	33	57	29	28	50	26	25	44	35	22
		27-45	100	100	100	97	97	97	94	93	93	91	90	90	89	87	87	86	84	84	82	78	78	70	64	64	61	55	55	53	48	48	47	42	42	42	37	37	38	33	33
10	B	0-7	90	90	90	90	90	90	90	90	86	90	90	82	90	90	65	90	90	59	90	87	54	90	78	46	90	62	39	89	54	34	85	47	30	78	41	26	69	37	23
		7-27	91	91	91	91	91	89	91	91	85	91	91	81	91	91	71	91	91	64	91	88	58	91	82	49	91	66	42	91	57	36	88	50	32	84	44	28	77	39	25
		27-45	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	100	100	100	98	98	98	94	92	92	90	87	87	85	83	83	76	72	72	68	62	62	61	55	55
	C	0-7	90	90	76	90	90	62	90	88	56	90	84	50	90	77	45	90	67	41	90	60	38	87	51	32	83	44	27	71	38	24	61	33	31	54	29	28	48	26	25
		7-27	91	91	78	91	91	67	91	89	60	91	85	54	91	82	49	91	72	45	91	64	41	91	54	35	86	46	30	80	40	26	68	35	34	60	31	30	53	27	27
		27-45	101	101	101	101	101	101	99	99	99	96	96	96	93	92	92	91	89	89	89	86	86	82	79	79	71	66	66	62	57	57	55	50	50	49	44	44	44	39	39
	D	0-7	90	90	58	90	86	52	90	81	47	90	68	42	90	61	38	90	55	35	87	51	32	81	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	21
		7-27	91	90	63	91	86	56	91	83	50	91	73	45	91	64	41	91	58	37	90	53	34	85	45	29	77	39	25	65	33	33	57	29	28	50	26	25	44	35	22
		27-45	100	100	100	97	97	97	94	93	93	91	90	90	89	87	87	86	84	84	82	78	78	70	64	64	61	55	55	53	48	48	47	42	42	42	37	37	38	33	33
20	B	0-7	71	71	71	71	71	71	71	71	71	71	71	71	71	71	65	71	71	59	71	71	54	71	71	46	71	62	39	71	54	34	71	47	30	71	41	26	69	37	23
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	71	49	71	66	42	71	57	36	67	50	32	64	44	28	62	39	25
		27-45	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	94	94	94	92	92	92	89	89	89	87	87	87	82	82	82	75	72	72	68	62	62	61	55	55
	C	0-7	71	71	71	71	71	62	71	71	56	71	71	50	71	71	45	71	67	41	71	60	38	71	51	32	71	44	27	71	38	24	61	33	31	54	29	28	48	26	25
		7-27	71	71	71	71	71	67	71	71	60	71	71	54	71	71	49	71	71	45	71	64	41	69	54	35	66	46	30	62	40	26	59	35	34	56	31	30	53	27	27
		27-45	95	95	95	94	94	94	93	93	93	91	91	91	89	89	89	88	88	88	86	86	86	79	79	79	71	66	66	62	57	57	55	50	50	49	44	44	44	39	39
	D	0-7	71	71	58	71	71	52	71	71	47	71	68	42	71	61	38	71	55	35	71	51	32	71	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	21
		7-27	71	71	63	71	71	56	71	71	50	71	71	45	71	64	41	71	58	37	69	53	34	65	45	29	62	39	25	58	33	33	55	29	28	50	26	25	44	35	22
		27-45	94	94	94	93	93	93	91	91	91	89	89	89	87	87	87	85	84	84	81	78	78	70	64	64	61	55	55	53	48	48	47	42	42	42	37	37	38	33	33
30	B	0-7	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	59	69	69	54	69	69	46	69	62	39	69	54	34	69	47	30	69	41	26	69	37	23
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	71	49	71	66	42	71	57	36	67	50	32	64	44	28	62	39	25
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	89	89	87	87	87	84	84	84	78	78	78	72	72	72	67	67	67	62	62	62	57	55	55
	C	0-7	69	69	69	69	69	62	69	69	56	69	69	50	69	69	45	69	67	41	69	60	38	69	51	32	69	44	27	69	38	24	61	33	31	54	29	28	48	26	25
		7-27	71	71	71	71	71	67	71	71	60	71	71	54	71	71	49	71	71	45	71	64	41	69	54	35	66	46	30	62	40	26	59	35	34	56	31	30	53	27	27
		27-45	90	90	90	89	89	89	88	88	88	86	86	86	84	84	84	81	81	81	77	77	77	70	70	70	64	64	64	58	57	57	54	50	50	49	44	44	44	39	39
	D	0-7	71	71	58	71	71	52	71	71	47	71	68	42	71	61	38	71	55	35	71	51	32	71	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	21
		7-27	71	71	63	71	71	56	71	71	50	71	71	45	71	64	41	71	58	37	69	53	34	65	45	29	62	39	25	58	33	33	55	29	28	50	26	25	44	35	22
		27-45	90	90	90	88	88	88	86	86	86	84	84	84	80	80	80	76	76	76	72	72	72	65	64	64	59	55	55	53	48	48	47	42	42	42	37	37	38	33	33
40	B	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	46	57	57	39	57	54	34	57	47	30	57	41	26	57	37	23
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	60	42	59	57	36	57	50	32	55	44	28	53	39	25
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	82	82	80	80	80	74	74	74	69	69	69	65	65	65	60	60	60	56	56	56	53	53	53
	C	0-7	57	57	57	57	57	57	57	57	56	57	57	50	57	57	45	57	57	41	57	57	38	57	51	32	57	44	27	57	38	24	57	33	31	54	29	28	48	26	25
		7-27	60	60	60	60	60	60	60	60	60	60	60	54	60	60	49	60	60	45	60	60	41	59	54	35	56	46	30	54	40	26	51	35	34	49	31	30	47	27	27
		27-45	85	85	85	84	84	84	80	80	80	77	77	77	74	74	74	71	71	71	68	68	68	63	63	63	58	58	58	54	54	54	49	49	49	46	44	44	42	39	39
	D	0-7	61	61	58	61	61	52	61	61	47	61	61	42	61	61	38	61	55	35	61	51	32	61	43	27	61	37	23	59	32	30	51	28	26	45	24	23	40	33	21
		7-27	65	65	63	65	65	56	65	65	50	65	65	45	65	64	41	64	58	37	62	53	34	59	45	29	56	39	25	54	33	33	51	29	28	48	26	25	44	35	22
		27-45	85	85	85	83	83	83	79	79	79	75	75	75	72	72	72	68	68	68	65	65	65	59	59	59	54	54	54	50	48	48	46	42	42	42	37	37	38	33	33
50	B	0-7	47	47	47	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	47	34	47	47	30	47	41	26	47	37	23
		7-27	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	50	50	36	49	49	32	48	44	28	46	39	25
		27-45	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	73	73	70	70	70	66	66	66	62	62	62	59	59	59	55	55	55	52	52	52	49	49	49
	C	0-7	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	38	47	47	32	47	44	27	47	38	24	47	33	31	47	29	28	46	26	25
		7-27	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	45	50	50	41	50	50	35	49	46	30	47	40	26	45	35	34	43	31	30	41	27	27
		27-45	75	75	75	74	74	74	71	71	71	69	69	69	66	66	66	64	64	64	61	61	61	57	57	57	53	53	53	49	49	49	46	46	46	43	43	43	40	39	39
	D	0-7	51	51	51	51	51	51	51	51	47	51	51	42	51	51	38	51	51	35	51	51	32	51	43	27	51	37	23	51	32	30	50	28	26	45	24	23	40	33	21
		7-27	56	56	56	56	56	56	56	56	50	56	56	45	56	56	41	55	55	37	54	53	34	52	45	29	50	39	25	47	33	33	45	29	28	43	26	25	41	35	22
		27-45	77	77	77	74	74	74	71	71	71	68	68	68	65	65	65	62	62	62	60	60	60	55	55	55	50	50	50	46	46	46	43	42	42	40	37	37	37	33	33

* 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 7-10	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	30	39	39	26	39	37	23
		7-27	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	36	43	43	32	42	42	28	41	39	25
		27-45	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	65	65	63	63	63	60	60	60	57	57	57	54	54	54	51	51	51	48	48	48	45	45	45
	C	0-7	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	39	27	39	38	24	39	33	31	39	29	28	39	26	25
		7-27	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	35	43	43	30	41	40	26	40	35	34	39	31	30	37	27	27
		27-45	67	67	67	66	66	66	64	64	64	62	62	62	60	60	60	58	58	58	56	56	56	52	52	52	49	49	49	46	46	46	43	43	43	40	40	40	37	37	37
	D	0-7	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	43	35	43	43	32	43	43	27	43	37	23	43	32	30	43	28	26	43	24	23	40	33	~~21~~
		7-27	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	47	47	34	46	45	29	44	39	25	42	33	33	41	29	28	39	26	25	37	35	~~22~~
		27-45	69	69	69	66	66	66	64	64	64	62	62	62	59	59	59	57	57	57	55	55	55	51	51	51	47	47	47	44	44	44	40	40	40	37	37	37	35	33	33
70	B	0-7	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	26	34	34	23
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32	37	37	32	37	37	28	37	37	25
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	59	59	57	57	57	55	55	55	52	52	52	49	49	49	47	47	47	44	44	44	42	42	42
	C	0-7	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	27	34	34	24	34	33	31	34	29	28	34	26	25
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	37	26	36	35	34	35	31	30	34	27	27
		27-45	61	61	61	60	60	60	58	58	58	56	56	56	55	55	55	53	53	53	51	51	51	48	48	48	45	45	45	43	43	43	40	40	40	38	38	38	35	35	35
	D	0-7	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	37	23	37	32	30	37	28	26	37	24	23	37	33	~~21~~
		7-27	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	34	41	41	29	40	39	25	38	33	33	37	29	28	35	26	25	34	35	~~22~~
		27-45	63	63	63	61	61	61	59	59	59	57	57	57	55	55	55	53	53	53	51	51	51	47	47	47	44	44	44	41	41	41	38	38	38	36	36	36	33	33	33
80	B	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	23
		7-27	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	28	32	32	25
		27-45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	54	54	53	53	53	50	50	50	48	48	48	46	46	46	44	44	44	41	41	41	39	39	39
	C	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	31	30	29	28	30	26	25
		7-27	32	32	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	26	32	32	34	32	31	30	31	27	27
		27-45	55	55	55	54	54	54	53	53	53	52	52	52	50	50	50	49	49	49	48	48	48	45	45	45	42	42	42	40	40	40	38	38	38	35	35	35	33	33	33
	D	0-7	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	33	23	33	32	30	33	28	26	33	24	23	33	33	~~21~~
		7-27	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	25	35	33	33	34	29	28	33	26	25	31	35	~~22~~
		27-45	58	58	58	56	56	56	54	54	54	52	52	52	51	51	51	49	49	49	47	47	47	44	44	44	41	41	41	39	39	39	36	36	36	34	34	34	32	32	32
90	B	0-7	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	26	27	27	23
		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	47	47	45	45	45	43	43	43	41	41	41	39	39	39	37	37	37
	C	0-7	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	31	27	27	28	27	26	25
		7-27	29	29	29	29	29	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	29	30	28	27	27
		27-45	49	49	49	49	49	49	49	49	49	48	48	48	47	47	47	45	45	45	44	44	44	42	42	42	40	40	40	38	38	38	35	35	35	34	34	34	32	32	32
	D	0-7	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	29	30	29	28	26	29	24	23	29	33	~~21~~
		7-27	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	25	32	32	33	31	29	28	30	26	25	29	35	~~22~~
		27-45	53	53	53	52	52	52	50	50	50	49	49	49	47	47	47	46	46	46	44	44	44	42	42	42	39	39	39	37	37	37	34	34	34	32	32	32	30	30	30
100	B	0-7	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	23
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25
		27-45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	43	43	42	42	42	40	40	40	38	38	38	37	37	37	35	35	35
	C	0-7	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	31	24	24	28	24	24	25
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	34	26	26	30	26	26	27
		27-45	45	45	45	45	45	45	45	45	45	44	44	44	43	43	43	42	42	42	41	41	41	39	39	39	37	37	37	35	35	35	34	34	34	32	32	32	30	30	30
	D	0-7	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	30	27	27	26	27	24	23	27	33	~~21~~
		7-27	29	29	29	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	33	29	29	28	28	26	25	27	35	~~22~~
		27-45	49	49	49	48	48	48	47	47	47	46	46	46	44	44	44	43	43	43	42	42	42	39	39	39	37	37	37	35	35	35	33	33	33	31	31	31	29	29	29

* 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 7-10	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	86	86	72	86	86	60	86	85	51	86	80	44	86	70	40	86	62	36	86	55	33	84	45	28	73	38	24	63	33	20	54	28	18	47	25	16	41	22	14
		7-27	86	86	69	86	86	61	86	85	53	86	82	48	86	73	43	86	65	39	86	58	35	86	48	30	82	40	26	70	35	22	60	30	19	53	27	17	46	24	15
		27-45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	84	84	78	78	78	68	68	68	59	59	59	52	50	50	46	43	43	41	38	38	37	34	34
	C	0-7	86	77	42	86	66	38	86	57	34	86	50	30	84	45	28	78	40	25	71	37	23	59	31	19	50	26	17	43	23	14	37	20	19	33	18	17	29	16	15
		7-27	86	79	46	86	68	41	86	60	36	86	53	33	86	47	30	84	42	27	80	39	25	66	33	21	56	28	18	48	24	15	41	21	14	36	19	18	32	16	16
		27-45	87	87	87	86	86	86	80	80	80	74	74	74	68	68	68	63	63	63	58	57	57	50	47	47	43	40	40	38	35	35	34	30	30	30	27	27	27	24	24
	D	0-7	86	61	35	86	53	31	85	46	28	80	41	25	71	37	23	64	34	21	58	31	19	49	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	86	63	38	86	55	34	86	49	30	85	43	27	80	39	25	72	35	23	65	32	21	55	27	18	46	23	15	40	20	13	35	18	17	30	16	15	27	14	13
		27-45	83	83	83	76	76	76	69	69	69	63	63	63	58	57	57	54	51	51	49	47	47	42	39	39	37	34	34	33	29	29	29	25	25	26	22	22	23	20	20
10	B	0-7	62	62	62	62	62	60	62	62	51	62	62	44	62	62	40	62	62	36	62	55	33	62	45	28	62	38	24	62	33	20	54	28	18	47	25	16	41	22	14
		7-27	63	63	63	63	63	61	63	63	53	63	63	48	63	63	43	63	63	39	63	58	35	63	48	30	63	40	26	63	35	22	59	30	19	53	27	17	46	24	15
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	83	83	78	78	78	68	68	68	59	59	59	52	50	50	46	43	43	41	38	38	37	34	34
	C	0-7	62	62	42	62	62	38	62	57	34	62	50	30	62	45	28	62	40	25	62	37	23	59	31	19	50	26	17	43	23	14	37	20	19	33	18	17	29	16	15
		7-27	63	63	46	63	63	41	63	60	36	63	53	33	63	47	30	63	42	27	63	39	25	61	33	21	56	28	18	48	24	15	41	21	14	36	19	18	32	16	16
		27-45	86	86	86	85	85	85	80	80	80	74	74	74	68	68	68	63	63	63	58	57	57	50	47	47	43	40	40	38	35	35	34	30	30	30	27	27	27	24	24
	D	0-7	62	61	35	62	53	31	62	46	28	62	41	25	62	37	23	62	34	21	58	31	19	49	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	63	63	38	63	55	34	63	49	30	63	43	27	63	39	25	63	35	23	61	32	21	55	27	18	46	23	15	40	20	13	35	18	17	30	16	15	27	14	13
		27-45	83	83	83	76	76	76	69	69	69	63	63	63	58	57	57	54	51	51	49	47	47	42	39	39	37	34	34	33	29	29	29	25	25	26	22	22	23	20	20
20	B	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	36	43	43	33	43	43	28	43	38	24	43	33	20	43	28	18	43	25	16	41	22	14
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	35	44	44	30	44	40	26	43	35	22	41	30	19	39	27	17	38	24	15
		27-45	72	72	72	72	72	72	72	72	72	72	72	72	71	71	71	68	68	68	65	65	65	60	60	60	54	54	54	50	50	50	46	43	43	41	38	38	37	34	34
	C	0-7	43	43	42	43	43	38	43	43	34	43	43	30	43	43	28	43	40	25	43	37	23	43	31	19	43	26	17	43	23	14	37	20	19	33	18	17	29	16	15
		7-27	44	44	44	44	44	41	44	44	36	44	44	33	44	44	30	44	42	27	44	39	25	42	33	21	40	28	18	38	24	15	36	21	14	34	19	18	32	16	16
		27-45	72	72	72	70	70	70	66	66	66	63	63	63	59	59	59	56	56	56	53	53	53	48	47	47	43	40	40	38	35	35	34	30	30	30	27	27	27	24	24
	D	0-7	43	43	35	43	43	31	43	43	28	43	41	25	43	37	23	43	34	21	43	31	19	43	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	44	44	38	44	44	34	44	44	30	44	43	27	44	39	25	43	35	23	42	32	21	40	27	18	38	23	15	36	20	13	34	18	17	30	16	15	27	14	13
		27-45	70	70	70	66	66	66	62	62	62	59	59	59	55	55	55	52	51	51	49	47	47	42	39	39	37	34	34	33	29	29	29	25	25	26	22	22	23	20	20
30	B	0-7	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	42	33	42	42	28	42	38	24	42	33	20	42	28	18	42	25	16	41	22	14
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	35	44	44	30	44	40	26	43	35	22	41	30	19	39	27	17	38	24	15
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	58	58	58	56	56	56	51	51	51	48	48	48	44	44	44	41	41	41	38	38	38	35	34	34
	C	0-7	42	42	42	42	42	38	42	42	34	42	42	30	42	42	28	42	40	25	42	37	23	42	31	19	42	26	17	42	23	14	37	20	19	33	18	17	29	16	15
		7-27	44	44	44	44	44	41	44	44	36	44	44	33	44	44	30	44	42	27	44	39	25	42	33	21	40	28	18	38	24	15	36	21	14	34	19	18	32	16	16
		27-45	61	61	61	59	59	59	56	56	56	54	54	54	51	51	51	49	49	49	47	47	47	43	43	43	39	39	39	36	35	35	33	30	30	30	27	27	27	24	24
	D	0-7	43	43	35	43	43	31	43	43	28	43	41	25	43	37	23	43	34	21	43	31	19	43	26	16	41	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	44	44	38	44	44	34	44	44	30	44	43	27	44	39	25	43	35	23	42	32	21	40	27	18	38	23	15	36	20	13	34	18	17	30	16	15	27	14	13
		27-45	60	60	60	57	57	57	54	54	54	51	51	51	49	49	49	46	46	46	44	44	44	40	39	39	36	34	34	33	29	29	29	25	25	26	22	22	23	20	20
40	B	0-7	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	24	35	33	20	35	28	18	35	25	16	35	22	14
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	37	26	36	35	22	35	30	19	34	27	17	32	24	15
		27-45	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	50	50	48	48	48	45	45	45	42	42	42	39	39	39	37	37	37	34	34	34	32	32	32
	C	0-7	35	35	35	35	35	35	35	35	34	35	35	30	35	35	28	35	35	25	35	35	23	35	31	19	35	26	17	35	23	14	35	20	19	33	18	17	29	16	15
		7-27	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	37	37	27	37	37	25	36	33	21	34	28	18	33	24	15	31	21	14	30	19	18	29	16	16
		27-45	52	52	52	51	51	51	49	49	49	47	47	47	45	45	45	43	43	43	42	42	42	38	38	38	35	35	35	33	33	33	30	30	30	28	27	27	26	24	24
	D	0-7	37	37	35	37	37	31	37	37	28	37	37	25	37	37	23	37	34	21	37	31	19	37	26	16	37	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	40	40	38	40	40	34	40	40	30	40	40	27	40	39	25	39	35	23	38	32	21	36	27	18	34	23	15	33	20	13	31	18	17	29	16	15	27	14	13
		27-45	53	53	53	50	50	50	48	48	48	46	46	46	44	44	44	42	42	42	40	40	40	36	36	36	33	33	33	30	29	29	28	25	25	26	22	22	23	20	20
50	B	0-7	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	20	28	28	18	28	25	16	28	22	14			
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	31	22	30	30	19	29	27	17	28	24	15			
		27-45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	43	43	43	40	40	40	38	38	38	36	36	36	34	34	34	32	32	32	30	30	30
	C	0-7	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	19	28	26	17	28	23	14	28	20	19	28	18	17			
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	31	25	31	31	21	30	28	18	28	24	15	27	21	14	26	19	18			
		27-45	46	46	46	45	45	45	43	43	43	42	42	42	40	40	40	39	39	39	38	38	38	35	35	35	32	32	32	30	30	30	28	28	28	26	26	26			
	D	0-7	31	31	31	31	31	31	31	31	28	31	31	25	31	31	23	31	31	21	31	31	19	31	26	16	31	22	14	31	19	18	31	17	16	27	15	14			
		7-27	34	34	34	34	34	34	34	34	30	34	34	27	34	34	25	34	34	23	33	32	21	32	27	18	30	23	15	29	20	13	28	18	17	26	16	15			
		27-45	47	47	47	45	45	45	43	43	43	41	41	41	40	40	40	38	38	38	36	36	36	33	33	33	31	31	31	28	28	28	26	25	25	24	22	22			

* 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 7-10	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	18	24	24	16	24	22	14
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	26	17	25	24	15
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40	39	39	39	37	37	37	35	35	35	33	33	33	31	31	31	29	29	29	27	27	27
	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	19	24	24	17	24	23	14	24	20	19	24	18	17	24	16	15
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	26	18	25	24	15	24	21	14	23	19	18	23	16	16
		27-45	41	41	41	40	40	40	39	39	39	38	38	38	37	37	37	35	35	35	34	34	34	32	32	32	30	30	30	28	28	28	26	26	26	24	24	24	23	23	23
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	19	26	26	16	26	22	14	26	19	18	26	17	16	26	15	14	24	13	~~12~~
		7-27	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	29	23	29	29	21	28	27	18	27	23	15	26	20	13	25	18	17	24	16	15	23	14	13
		27-45	42	42	42	41	41	41	39	39	39	38	38	38	36	36	36	35	35	35	34	34	34	31	31	31	29	29	29	27	27	27	25	25	25	23	22	22	21	20	20
70	B	0-7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16	21	21	14
		7-27	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	22	22	17	22	22	15
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	36	35	35	35	33	33	33	32	32	32	30	30	30	29	29	29	27	27	27	26	26	26
	C	0-7	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	21	14	21	20	19	21	18	17	21	16	15
		7-27	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	15	22	21	14	21	19	18	20	16	16
		27-45	37	37	37	36	36	36	35	35	35	34	34	34	33	33	33	32	32	32	31	31	31	29	29	29	28	28	28	26	26	26	24	24	24	23	23	23	21	21	21
	D	0-7	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	23	16	23	22	14	23	19	18	23	17	16	23	15	14	23	13	~~12~~
		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	18	24	23	15	23	20	13	22	18	17	22	16	15	21	14	13
		27-45	38	38	38	37	37	37	36	36	36	35	35	35	33	33	33	32	32	32	31	31	31	29	29	29	27	27	27	25	25	25	23	23	23	22	22	22	20	20	20
80	B	0-7	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	16	18	18	14
		7-27	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	20	20	15
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	32	32	32	31	31	31	29	29	29	28	28	28	27	27	27	25	25	25	24	24	24
	C	0-7	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	14	18	18	19	18	18	17	18	16	15
		7-27	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15	20	20	14	19	19	18	19	16	16
		27-45	34	34	34	33	33	33	32	32	32	32	32	32	31	31	31	30	30	30	29	29	29	27	27	27	26	26	26	24	24	24	23	23	23	22	22	22	20	20	20
	D	0-7	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	14	20	19	18	20	17	16	20	15	14	20	13	~~12~~
		7-27	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	15	21	20	13	20	18	17	20	16	15	19	14	13
		27-45	35	35	35	34	34	34	33	33	33	32	32	32	31	31	31	30	30	30	29	29	29	27	27	27	25	25	25	24	24	24	22	22	22	21	21	21	19	19	19
90	B	0-7	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14
		7-27	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
		27-45	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	25	24	24	24	23	23	23
	C	0-7	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	19	16	16	17	16	16	15
		7-27	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	14	18	18	18	17	16	16
		27-45	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	28	28	28	27	27	27	26	26	26	24	24	24	23	23	23	22	22	22	20	20	20	19	19	19
	D	0-7	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	14	18	18	18	18	17	16	18	15	14	18	13	~~12~~
		7-27	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	19	13	19	18	17	18	16	15	18	14	13
		27-45	32	32	32	32	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	25	25	25	24	24	24	22	22	22	21	21	21	20	20	20	18	18	18
100	B	0-7	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
		7-27	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
		27-45	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	22	21	21	21
	C	0-7	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	19	14	14	17	14	14	15
		7-27	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	14	16	16	18	16	16	16
		27-45	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	25	25	25	24	24	24	23	23	23	22	22	22	20	20	20	19	19	19	18	18	18
	D	0-7	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	18	16	16	16	16	15	14	16	13	~~12~~
		7-27	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	17	17	17	17	16	15	16	14	13
		27-45	30	30	30	29	29	29	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24	23	23	23	21	21	21	20	20	20	19	19	19	18	18	18

* 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 7-10	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	102	102	96	102	102	91	102	102	87	102	98	83	102	94	68	102	91	60	102	88	55	100	81	47	95	64	40	90	55	35	86	48	30	80	42	27	70	37	24
		7-27	102	102	93	102	102	89	102	102	86	102	99	83	102	95	73	102	92	65	102	88	59	102	83	50	98	68	43	93	58	37	89	51	33	85	45	29	79	40	25
		27-45	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	101	101	99	99	99	94	93	93	90	88	88	86	84	84	78	74	74	69	64	64	62	57	57
	C	0-7	102	97	81	102	93	63	102	89	57	102	85	51	100	80	46	97	69	42	94	62	39	88	52	33	83	45	28	72	39	24	63	34	21	55	30	28	49	26	25
		7-27	102	97	80	102	93	69	102	89	61	102	86	55	102	83	50	100	74	46	97	65	42	91	55	35	86	47	30	82	41	26	70	36	23	61	31	31	54	28	27
		27-45	103	103	103	102	102	102	99	99	99	97	96	96	94	93	93	92	90	90	89	87	87	84	81	81	73	68	68	64	58	58	57	51	51	50	45	45	45	40	40
	D	0-7	102	90	59	102	86	53	101	83	48	97	71	43	94	62	39	91	56	36	88	52	32	83	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	102	91	64	102	87	57	102	84	51	101	75	46	97	66	42	94	60	38	91	55	35	86	46	30	79	40	25	67	34	22	58	30	29	51	26	26	45	23	23
		27-45	101	101	101	98	98	98	95	94	94	92	90	90	90	87	87	87	84	84	84	80	80	72	66	66	62	56	56	55	49	49	48	43	43	43	38	38	39	33	33
10	B	0-7	91	91	91	91	91	91	91	91	87	91	91	83	91	91	68	91	91	60	91	88	55	91	81	47	91	64	40	90	55	35	86	48	30	80	42	27	70	37	24
		7-27	91	91	91	91	91	89	91	91	86	91	91	83	91	91	73	91	91	65	91	88	59	91	83	50	91	68	43	91	58	37	89	51	33	85	45	29	79	40	25
		27-45	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	101	101	99	99	99	94	93	93	90	88	88	86	84	84	78	74	74	69	64	64	62	57	57
	C	0-7	91	91	81	91	91	63	91	89	57	91	85	51	91	80	46	91	69	42	91	62	39	88	52	33	83	45	28	72	39	24	63	34	21	55	30	28	49	26	25
		7-27	91	91	80	91	91	69	91	89	61	91	86	55	91	83	50	91	74	46	91	65	42	91	55	35	86	47	30	82	41	26	70	36	23	61	31	31	54	28	27
		27-45	102	102	102	102	102	102	99	99	99	97	96	96	94	93	93	92	90	90	89	87	87	84	81	81	73	68	68	64	58	58	57	51	51	50	45	45	45	40	40
	D	0-7	91	90	59	91	86	53	91	83	48	91	71	43	91	62	39	91	56	36	88	52	32	83	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	91	91	64	91	87	57	91	84	51	91	75	46	91	66	42	91	60	38	91	55	35	86	46	30	79	40	25	67	34	22	58	30	29	51	26	26	45	23	23
		27-45	101	101	101	98	98	98	95	94	94	92	90	90	90	87	87	87	84	84	84	80	80	72	66	66	62	56	56	55	49	49	48	43	43	43	38	38	39	33	33
20	B	0-7	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	72	72	60	72	72	55	72	72	47	72	64	40	72	55	35	72	48	30	72	42	27	70	37	24
		7-27	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	65	73	73	59	73	73	50	73	68	43	72	58	37	69	51	33	66	45	29	63	40	25
		27-45	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	94	94	94	93	93	93	90	90	90	88	88	88	84	84	84	77	74	74	69	64	64	62	57	57
	C	0-7	72	72	72	72	72	63	72	72	57	72	72	51	72	72	46	72	69	42	72	62	39	72	52	33	72	45	28	72	39	24	63	34	21	55	30	28	49	26	25
		7-27	73	73	73	73	73	69	73	73	61	73	73	55	73	73	50	73	73	46	73	65	42	71	55	35	67	47	30	64	41	26	61	36	23	57	31	31	54	28	27
		27-45	96	96	96	95	95	95	93	93	93	92	92	92	90	90	90	89	89	89	87	87	87	81	81	81	73	68	68	64	58	58	57	51	51	50	45	45	45	40	40
	D	0-7	72	72	59	72	72	53	72	72	48	72	71	43	72	62	39	72	56	36	72	52	32	72	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	73	73	64	73	73	57	73	73	51	73	73	46	73	66	42	73	60	38	71	55	35	67	46	30	63	40	25	60	34	22	56	30	29	51	26	26	45	23	23
		27-45	95	95	95	93	93	93	91	91	91	90	90	90	88	87	87	86	84	84	83	80	80	72	66	66	62	56	56	55	49	49	48	43	43	43	38	38	39	33	33
30	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	70	70	60	70	70	55	70	70	47	70	64	40	70	55	35	70	48	30	70	42	27	70	37	24
		7-27	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	65	73	73	59	73	73	50	73	68	43	72	58	37	69	51	33	66	45	29	63	40	25
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	89	89	88	88	88	85	85	85	80	80	80	74	74	74	68	68	68	63	63	63	59	57	57
	C	0-7	70	70	70	70	70	63	70	70	57	70	70	51	70	70	46	70	69	42	70	62	39	70	52	33	70	45	28	70	39	24	63	34	21	55	30	28	49	26	25
		7-27	73	73	73	73	73	69	73	73	61	73	73	55	73	73	50	73	73	46	73	65	42	71	55	35	67	47	30	64	41	26	61	36	23	57	31	31	54	28	27
		27-45	90	90	90	90	90	90	88	88	88	87	87	87	85	85	85	83	83	83	79	79	79	72	72	72	65	65	65	60	58	58	55	51	51	50	45	45	45	40	40
	D	0-7	72	72	59	72	72	53	72	72	48	72	71	43	72	62	39	72	56	36	72	52	32	72	44	27	70	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	73	73	64	73	73	57	73	73	51	73	73	46	73	66	42	73	60	38	71	55	35	67	46	30	63	40	25	60	34	22	56	30	29	51	26	26	45	23	23
		27-45	90	90	90	89	89	89	87	87	87	85	85	85	82	82	82	78	78	78	74	74	74	67	66	66	60	56	56	55	49	49	48	43	43	43	38	38	39	33	33
40	B	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	47	58	58	40	58	55	35	58	48	30	58	42	27	58	37	24
		7-27	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	50	62	62	43	61	58	37	59	51	33	56	45	29	54	40	25
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	84	84	82	82	82	76	76	76	71	71	71	66	66	66	62	62	62	58	58	58	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	57	58	58	51	58	58	46	58	58	42	58	58	39	58	52	33	58	45	28	58	39	24	58	34	21	55	30	28	49	26	25
		7-27	62	62	62	62	62	62	62	62	61	62	62	55	62	62	50	62	62	46	62	62	42	60	55	35	57	47	30	55	41	26	53	36	23	50	31	31	48	28	27
		27-45	86	86	86	85	85	85	82	82	82	79	79	79	76	76	76	73	73	73	70	70	70	64	64	64	59	59	59	55	55	55	51	51	51	47	45	45	43	40	40
	D	0-7	63	63	59	63	63	53	63	63	48	63	63	43	63	62	39	63	56	36	63	52	32	63	44	27	63	37	24	60	32	31	52	28	27	46	25	24	41	22	21
		7-27	66	66	64	66	66	57	66	66	51	66	66	46	66	66	42	65	60	38	64	55	35	61	46	30	58	40	25	55	34	22	52	30	29	49	26	26	45	23	23
		27-45	86	86	86	84	84	84	81	81	81	77	77	77	73	73	73	70	70	70	67	67	67	61	61	61	56	56	56	51	49	49	47	43	43	43	38	38	39	33	33
50	B	0-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	40	48	48	35	48	48	30	48	42	27	48	37	24
		7-27	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	43	52	52	37	51	51	33	49	45	29	47	40	25
		27-45	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	74	74	74	72	72	72	68	68	68	64	64	64	60	60	60	56	56	56	53	53	53	50	50	50
	C	0-7	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	48	39	48	48	33	48	45	28	48	39	24	48	34	21	48	30	28	47	26	25
		7-27	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	46	52	52	42	52	52	35	50	47	30	48	41	26	46	36	23	44	31	31	42	28	27
		27-45	77	77	77	75	75	75	73	73	73	70	70	70	68	68	68	65	65	65	63	63	63	58	58	58	54	54	54	50	50	50	47	47	47	44	44	44	41	40	40
	D	0-7	53	53	53	53	53	53	53	53	48	53	53	43	53	53	39	53	53	36	53	52	32	53	44	27	53	37	24	53	32	31	51	28	27	46	25	24	41	22	21
		7-27	57	57	57	57	57	57	57	57	51	57	57	46	57	57	42	56	56	38	55	55	35	53	46	30	51	40	25	48	34	22	46	30	29	44	26	26	42	23	23
		27-45	79	79	79	75	75	75	72	72	72	69	69	69	66	66	66	64	64	64	61	61	61	56	56	56	52	52	52	48	48	48	44	43	43	40	38	38	37	33	33

* 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 7-10	II	30 ft	Ss = 3.00	18.66 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	30	40	40	27	40	37	24
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	37	44	44	33	43	43	29	42	40	25
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	66	66	66	65	65	65	61	61	61	58	58	58	55	55	55	52	52	52	49	49	49	46	46	46
	C	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	33	40	40	28	40	39	24	40	34	21	40	30	28	40	26	25
		7-27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	35	44	44	30	42	41	26	41	36	23	39	31	31	38	28	27
		27-45	69	69	69	67	67	67	65	65	65	63	63	63	61	61	61	59	59	59	57	57	57	54	54	54	50	50	50	47	47	47	44	44	44	41	41	41	38	38	38
	D	0-7	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	36	44	44	32	44	44	27	44	37	24	44	32	31	44	28	27	44	25	24	41	22	21
		7-27	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	48	38	48	48	35	47	46	30	45	40	25	43	34	22	42	30	29	40	26	26	38	23	23
		27-45	71	71	71	68	68	68	65	65	65	63	63	63	61	61	61	58	58	58	56	56	56	52	52	52	48	48	48	45	45	45	41	41	41	38	38	38	36	33	33
70	B	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	27	35	35	24
		7-27	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	33	38	38	29	38	38	25
		27-45	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	60	60	59	59	59	56	56	56	53	53	53	51	51	51	48	48	48	45	45	45	43	43	43
	C	0-7	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	24	35	34	21	35	30	28	35	26	25
		7-27	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	30	38	38	26	37	36	23	36	31	31	34	28	27
		27-45	62	62	62	61	61	61	59	59	59	58	58	58	56	56	56	54	54	54	53	53	53	49	49	49	46	46	46	44	44	44	41	41	41	38	38	38	36	36	36
	D	0-7	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	32	38	38	27	38	37	24	38	32	31	38	28	27	38	25	24	38	22	21
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	35	42	42	30	41	40	25	39	34	22	38	30	29	36	26	26	35	23	23
		27-45	64	64	64	62	62	62	60	60	60	58	58	58	56	56	56	54	54	54	52	52	52	48	48	48	45	45	45	42	42	42	39	39	39	36	36	36	34	33	33
80	B	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24
		7-27	33	33	33	33	33	33	33	33	33	33	33	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	25
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	54	54	54	52	52	52	49	49	49	47	47	47	45	45	45	42	42	42	40	40	40
	C	0-7	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	24	30	30	21	30	30	28	30	26	25
		7-27	33	33	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	32	31	31	32	28	27
		27-45	56	56	56	56	56	56	54	54	54	53	53	53	51	51	51	50	50	50	49	49	49	46	46	46	43	43	43	41	41	41	38	38	38	36	36	36	34	34	34
	D	0-7	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	27	34	34	24	34	32	31	34	28	27	34	25	24	34	22	21
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	37	25	36	34	22	35	30	29	33	26	26	32	23	23
		27-45	59	59	59	57	57	57	55	55	55	54	54	54	52	52	52	50	50	50	49	49	49	45	45	45	42	42	42	40	40	40	37	37	37	35	35	35	32	32	32
90	B	0-7	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	27	27	27	24
		7-27	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	25
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	48	48	48	46	46	46	44	44	44	42	42	42	40	40	40	38	38	38
	C	0-7	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	21	27	27	28	27	26	25
		7-27	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	26	30	30	23	30	30	31	29	28	27
		27-45	51	51	51	51	51	51	50	50	50	49	49	49	48	48	48	46	46	46	45	45	45	43	43	43	41	41	41	38	38	38	36	36	36	34	34	34	32	32	32
	D	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	31	30	28	27	30	25	24	30	22	21
		7-27	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	25	33	33	22	32	30	29	31	26	26	30	23	23
		27-45	54	54	54	53	53	53	51	51	51	50	50	50	48	48	48	47	47	47	45	45	45	43	43	43	40	40	40	38	38	38	35	35	35	33	33	33	31	31	31
100	B	0-7	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24
		7-27	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	27	27	27	27	25
		27-45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	43	43	43	41	41	41	39	39	39	37	37	37	36	36	36
	C	0-7	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	28	25	25	25
		7-27	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	27	27	23	27	27	31	27	27	27
		27-45	46	46	46	46	46	46	46	46	46	45	45	45	44	44	44	43	43	43	42	42	42	40	40	40	38	38	38	36	36	36	34	34	34	33	33	33	31	31	31
	D	0-7	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	31	27	27	27	27	25	24	27	22	21
		7-27	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	25	30	30	22	29	29	29	29	26	26	28	23	23
		27-45	51	51	51	49	49	49	48	48	48	47	47	47	45	45	45	44	44	44	43	43	43	40	40	40	38	38	38	36	36	36	34	34	34	31	31	31	30	30	30

* 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 7-10	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	74	74	60	74	74	50	74	74	43	74	67	37	74	59	33	74	52	30	74	46	27	73	37	23	61	32	20	52	27	17	45	24	15	39	21	13	35	19	18
		7-27	74	74	58	74	74	51	74	74	45	74	68	40	74	61	36	74	54	32	74	49	30	74	40	25	69	33	21	59	29	18	51	25	16	44	22	14	39	20	19
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	71	71	71	66	66	66	57	57	57	50	49	49	44	42	42	39	36	36	34	32	32	31	28	28
	C	0-7	74	64	35	74	55	31	74	48	28	74	42	25	73	37	23	66	34	21	59	31	19	49	26	16	42	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	74	66	38	74	57	34	74	50	30	74	44	27	74	40	25	74	35	23	67	32	21	55	27	17	47	23	15	40	20	13	35	18	17	30	15	15	27	14	13
		27-45	76	76	76	73	73	73	67	67	67	62	62	62	57	57	57	52	52	52	48	47	47	42	39	39	36	33	33	32	29	29	28	25	25	25	22	22	23	20	20
	D	0-7	74	51	30	74	44	26	74	38	24	67	34	21	60	31	19	54	28	18	49	26	16	41	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	74	53	32	74	46	28	74	41	25	74	36	23	67	33	21	60	30	19	55	27	17	46	23	15	39	20	19	33	17	16	29	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	70	70	70	63	63	63	58	58	58	53	53	53	49	48	48	45	43	43	41	39	39	35	33	33	31	28	28	27	24	24	24	21	21	21	19	19	19	17	17
10	B	0-7	52	52	52	52	52	50	52	52	43	52	52	37	52	52	33	52	52	30	52	46	27	52	37	23	52	32	20	52	27	17	45	24	15	39	21	13	35	19	18
		7-27	52	52	52	52	52	51	52	52	45	52	52	40	52	52	36	52	52	32	52	49	30	52	40	25	52	33	21	52	29	18	49	25	16	44	22	14	39	20	19
		27-45	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	70	70	70	66	66	66	57	57	57	50	49	49	44	42	42	39	36	36	34	32	32	31	28	28
	C	0-7	52	52	35	52	52	31	52	48	28	52	42	25	52	37	23	52	34	21	52	31	19	49	26	16	42	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	52	52	38	52	52	34	52	50	30	52	44	27	52	40	25	52	35	23	52	32	21	51	27	17	47	23	15	40	20	13	35	18	17	30	15	15	27	14	13
		27-45	74	74	74	72	72	72	67	67	67	62	62	62	57	57	57	52	52	52	48	47	47	42	39	39	36	33	33	32	29	29	28	25	25	25	22	22	23	20	20
	D	0-7	52	51	30	52	44	26	52	38	24	52	34	21	52	31	19	52	28	18	49	26	16	41	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	52	52	32	52	46	28	52	41	25	52	36	23	52	33	21	52	30	19	51	27	17	46	23	15	39	20	19	33	17	16	29	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	70	70	70	63	63	63	58	58	58	53	53	53	49	48	48	45	43	43	41	39	39	35	33	33	31	28	28	27	24	24	24	21	21	21	19	19	19	17	17
20	B	0-7	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	36	23	36	32	20	36	27	17	36	24	15	36	21	13	35	19	18
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32	37	37	30	37	37	25	37	33	21	36	29	18	34	25	16	33	22	14	31	20	19
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	57	57	55	55	55	50	50	50	46	46	46	42	42	42	38	36	36	34	32	32	31	28	28
	C	0-7	36	36	35	36	36	31	36	36	28	36	36	25	36	36	23	36	34	21	36	31	19	36	26	16	36	22	14	36	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	37	37	37	37	37	34	37	37	30	37	37	27	37	37	25	37	35	23	37	32	21	35	27	17	33	23	15	32	20	13	30	18	17	29	15	15	27	14	13
		27-45	60	60	60	58	58	58	55	55	55	52	52	52	50	50	50	47	47	47	45	45	45	40	39	39	36	33	33	32	29	29	28	25	25	25	22	22	23	20	20
	D	0-7	36	36	30	36	36	26	36	36	24	36	34	21	36	31	19	36	28	18	36	26	16	36	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	37	37	32	37	37	28	37	37	25	37	36	23	37	33	21	36	30	19	35	27	17	33	23	15	31	20	19	30	17	16	28	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	59	59	59	55	55	55	52	52	52	49	49	49	46	46	46	44	43	43	41	39	39	35	33	33	31	28	28	27	24	24	24	21	21	21	19	19	19	17	17
30	B	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	23	35	32	20	35	27	17	35	24	15	35	21	13	35	19	18
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32	37	37	30	37	37	25	37	33	21	36	29	18	34	25	16	33	22	14	31	20	19
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	48	48	48	47	47	47	43	43	43	40	40	40	37	37	37	34	34	34	32	32	32	29	28	28
	C	0-7	35	35	35	35	35	31	35	35	28	35	35	25	35	35	23	35	34	21	35	31	19	35	26	16	35	22	14	35	19	18	31	17	16	27	15	14	24	13	~~12~~
		7-27	37	37	37	37	37	34	37	37	30	37	37	27	37	37	25	37	35	23	37	32	21	35	27	17	33	23	15	32	20	13	30	18	17	29	15	15	27	14	13
		27-45	51	51	51	49	49	49	47	47	47	45	45	45	43	43	43	41	41	41	39	39	39	36	36	36	33	33	33	30	29	29	27	25	25	25	22	22	23	20	20
	D	0-7	36	36	30	36	36	26	36	36	24	36	34	21	36	31	19	36	28	18	36	26	16	36	22	14	34	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	37	37	32	37	37	28	37	37	25	37	36	23	37	33	21	36	30	19	35	27	17	33	23	15	31	20	19	30	17	16	28	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	50	50	50	48	48	48	45	45	45	43	43	43	41	41	41	39	39	39	37	37	37	33	33	33	30	28	28	27	24	24	24	21	21	21	19	19	19	17	17
40	B	0-7	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	29	20	29	27	17	29	24	15	29	21	13	29	19	18
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	31	21	30	29	18	29	25	16	28	22	14	27	20	19
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	42	42	42	41	41	41	38	38	38	35	35	35	33	33	33	31	31	31	29	29	29	27	27	27
	C	0-7	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	29	21	29	29	19	29	26	16	29	22	14	29	19	18	29	17	16	27	15	14	24	13	~~12~~
		7-27	31	31	31	31	31	31	31	31	30	31	31	27	31	31	25	31	31	23	31	31	21	30	27	17	29	23	15	27	20	13	26	18	17	25	15	15	24	14	13
		27-45	44	44	44	43	43	43	41	41	41	39	39	39	38	38	38	36	36	36	35	35	35	32	32	32	30	30	30	27	27	27	25	25	25	23	22	22	22	20	20
	D	0-7	31	31	30	31	31	26	31	31	24	31	31	21	31	31	19	31	28	18	31	26	16	31	22	14	31	18	18	30	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	33	33	32	33	33	28	33	33	25	33	33	23	33	33	21	33	30	19	32	27	17	30	23	15	29	20	19	27	17	16	26	15	14	25	13	~~13~~	22	17	~~11~~
		27-45	44	44	44	42	42	42	40	40	40	38	38	38	37	37	37	35	35	35	33	33	33	30	30	30	28	28	28	25	24	24	23	21	21	21	19	19	19	17	17
50	B	0-7	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	24	15	24	21	13	24	19	18
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	26	18	25	25	16	24	22	14	24	20	19			
		27-45	39	39	39	39	39	39	39	39	39	39	39	39	38	38	38	37	37	37	36	36	36	34	34	34	32	32	32	30	30	30	28	28	28	26	26	26	25	25	25
	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	16	24	22	14	24	19	18	24	17	16	24	15	14	23	13	~~12~~
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	17	25	23	15	24	20	13	23	18	17	22	15	15	21	14	13
		27-45	39	39	39	38	38	38	36	36	36	35	35	35	34	34	34	33	33	33	31	31	31	29	29	29	27	27	27	25	25	25	23	23	23	22	22	22	20	20	20
	D	0-7	26	26	26	26	26	26	26	26	24	26	26	21	26	26	19	26	26	18	26	26	16	26	22	14	26	18	18	26	16	15	26	14	13	23	19	~~12~~	20	16	~~10~~
		7-27	28	28	28	28	28	28	28	28	25	28	28	23	28	28	21	28	28	19	28	27	17	26	23	15	25	20	19	24	17	16	23	15	14	22	13	~~13~~	21	17	~~11~~
		27-45	39	39	39	38	38	38	36	36	36	34	34	34	33	33	33	32	32	32	30	30	30	28	28	28	26	26	26	24	24	24	22	21	21	20	19	19	19	17	17

* 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 7-10	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	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	20	13	20	19	18
		7-27	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	21	14	21	20	19
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	32	32	32	31	31	31	29	29	29	27	27	27	26	26	26	24	24	24	23	23	23
	C	0-7	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	14	20	19	18	20	17	16	20	15	14	20	13	12
		7-27	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	17	22	22	15	21	20	13	20	18	17	20	15	15	19	14	13
		27-45	34	34	34	34	34	34	33	33	33	32	32	32	31	31	31	30	30	30	29	29	29	27	27	27	25	25	25	23	23	23	22	22	22	20	20	20	19	19	19
	D	0-7	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	22	14	22	18	18	22	16	15	22	14	13	22	19	12	20	16	10
		7-27	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	24	17	23	23	15	22	20	19	22	17	16	21	15	14	20	13	13	19	17	11
		27-45	35	35	35	34	34	34	33	33	33	31	31	31	30	30	30	29	29	29	28	28	28	26	26	26	24	24	24	22	22	22	20	20	20	19	19	19	18	17	17
70	B	0-7	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	17	18
		7-27	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	14	19	19	19
		27-45	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	25	24	24	24	23	23	23	21	21	21
	C	0-7	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	18	17	17	16	17	15	14	17	13	12
		7-27	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15	19	19	13	18	18	17	18	15	15	17	14	13			
		27-45	31	31	31	30	30	30	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26	25	25	25	23	23	23	22	22	22	20	20	20	19	19	19	18	18	18
	D	0-7	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	18	18	19	16	15	19	14	13	19	19	12	19	16	10
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	20	20	19	19	17	16	19	15	14	18	13	13	17	17	11
		27-45	32	32	32	31	31	31	30	30	30	29	29	29	28	28	28	27	27	27	26	26	26	24	24	24	22	22	22	21	21	21	19	19	19	18	18	18	17	17	17
80	B	0-7	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	13	15	15	18
		7-27	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	19
		27-45	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	27	27	26	26	26	24	24	24	23	23	23	22	22	22	21	21	21	20	20	20
	C	0-7	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	18	15	15	16	15	15	14	15	13	12
		7-27	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	17	16	15	15	16	14	13
		27-45	28	28	28	28	28	28	27	27	27	26	26	26	26	26	26	25	25	25	24	24	24	23	23	23	22	22	22	20	20	20	19	19	19	18	18	18	17	17	17
	D	0-7	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	18	17	16	15	17	14	13	17	19	12	17	16	10
		7-27	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	19	18	17	16	17	15	14	16	13	13	16	17	11
		27-45	29	29	29	28	28	28	28	28	28	27	27	27	26	26	26	25	25	25	24	24	24	23	23	23	21	21	21	20	20	20	18	18	18	17	17	17	16	16	16
90	B	0-7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	18
		7-27	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	19
		27-45	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	20	20	20	19	19	19
	C	0-7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	18	13	13	16	13	13	14	13	13	12
		7-27	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	13	15	15	17	15	15	15	14	14	13
		27-45	25	25	25	25	25	25	25	25	25	24	24	24	24	24	24	23	23	23	22	22	22	21	21	21	20	20	20	19	19	19	18	18	18	17	17	17	16	16	16
	D	0-7	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	14	15	15	18	15	15	15	15	14	13	15	19	12	15	16	10
		7-27	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	19	16	16	16	16	15	14	15	13	13	15	17	11
		27-45	27	27	27	26	26	26	26	26	26	25	25	25	24	24	24	23	23	23	23	23	23	21	21	21	20	20	20	19	19	19	17	17	17	16	16	16	15	15	15
100	B	0-7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18
		7-27	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19
		27-45	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	19	19	19	18	18	18
	C	0-7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	16	12	12	14	12	12	12
		7-27	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	17	13	13	15	13	13	13
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22	22	22	22	21	21	21	20	20	20	19	19	19	18	18	18	17	17	17	16	16	16	15	15	15
	D	0-7	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	18	13	13	15	13	13	13	13	19	12	13	16	10
		7-27	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	19	15	15	16	15	15	14	14	13	13	14	17	11
		27-45	25	25	25	24	24	24	24	24	24	23	23	23	23	23	23	22	22	22	21	21	21	20	20	20	19	19	19	18	18	18	17	17	17	16	16	16	15	15	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 7-10	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	101	101	95	101	101	91	101	101	86	101	98	82	101	94	65	101	90	59	101	87	54	99	78	46	94	62	39	89	54	34	85	47	30	78	41	26	69	37	23
		7-27	102	102	92	102	102	89	102	102	85	102	98	81	102	94	71	102	91	64	102	88	58	102	82	49	98	66	42	93	57	36	88	50	32	84	44	28	77	39	25
		27-45	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	100	100	100	98	98	98	94	92	92	90	87	87	85	83	83	76	72	72	68	62	62	61	55	55
	C	0-7	101	96	76	101	92	62	101	88	56	101	84	50	99	77	45	96	67	41	93	60	38	87	51	32	83	44	27	71	38	24	61	33	31	54	29	28	48	26	25
		7-27	102	97	78	102	92	67	102	89	60	102	85	54	102	82	49	100	72	45	96	64	41	91	54	35	86	46	30	80	40	26	68	35	34	60	31	30	53	27	27
		27-45	103	103	103	102	102	102	99	99	99	96	96	96	93	92	92	91	89	89	89	86	86	82	79	79	71	66	66	62	57	57	55	50	50	49	44	44	44	39	39
	D	0-7	101	90	58	101	86	52	100	81	47	96	68	42	93	61	38	90	55	35	87	51	32	81	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	~~21~~
		7-27	102	90	63	102	86	56	102	83	50	100	73	45	97	64	41	93	58	37	90	53	34	85	45	29	77	39	25	65	33	33	57	29	28	50	26	25	44	35	~~22~~
		27-45	100	100	100	97	97	97	94	93	93	91	90	90	89	87	87	86	84	84	82	78	78	70	64	64	61	55	55	53	48	48	47	42	42	42	37	37	38	33	33
10	B	0-7	90	90	90	90	90	90	90	90	86	90	90	82	90	90	65	90	90	59	90	87	54	90	78	46	90	62	39	89	54	34	85	47	30	78	41	26	69	37	23
		7-27	91	91	91	91	91	89	91	91	85	91	91	81	91	91	71	91	91	64	91	88	58	91	82	49	91	66	42	91	57	36	88	50	32	84	44	28	77	39	25
		27-45	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	100	100	100	98	98	98	94	92	92	90	87	87	85	83	83	76	72	72	68	62	62	61	55	55
	C	0-7	90	90	76	90	90	62	90	88	56	90	84	50	90	77	45	90	67	41	90	60	38	87	51	32	83	44	27	71	38	24	61	33	31	54	29	28	48	26	25
		7-27	91	91	78	91	91	67	91	89	60	91	85	54	91	82	49	91	72	45	91	64	41	91	54	35	86	46	30	80	40	26	68	35	34	60	31	30	53	27	27
		27-45	101	101	101	101	101	101	99	99	99	96	96	96	93	92	92	91	89	89	89	86	86	82	79	79	71	66	66	62	57	57	55	50	50	49	44	44	44	39	39
	D	0-7	90	90	58	90	86	52	90	81	47	90	68	42	90	61	38	90	55	35	87	51	32	81	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	~~21~~
		7-27	91	90	63	91	86	56	91	83	50	91	73	45	91	64	41	91	58	37	90	53	34	85	45	29	77	39	25	65	33	33	57	29	28	50	26	25	44	35	~~22~~
		27-45	100	100	100	97	97	97	94	93	93	91	90	90	89	87	87	86	84	84	82	78	78	70	64	64	61	55	55	53	48	48	47	42	42	42	37	37	38	33	33
20	B	0-7	71	71	71	71	71	71	71	71	71	71	71	71	71	71	65	71	71	59	71	71	54	71	71	46	71	62	39	71	54	34	71	47	30	71	41	26	69	37	23
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	71	49	71	66	42	71	57	36	67	50	32	64	44	28	62	39	25
		27-45	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	94	94	94	92	92	92	89	89	89	87	87	87	82	82	82	75	72	72	68	62	62	61	55	55
	C	0-7	71	71	71	71	71	62	71	71	56	71	71	50	71	71	45	71	67	41	71	60	38	71	51	32	71	44	27	71	38	24	61	33	31	54	29	28	48	26	25
		7-27	71	71	71	71	71	67	71	71	60	71	71	54	71	71	49	71	71	45	71	64	41	69	54	35	66	46	30	62	40	26	59	35	34	56	31	30	53	27	27
		27-45	95	95	95	94	94	94	93	93	93	91	91	91	89	89	89	88	88	88	86	86	86	79	79	79	71	66	66	62	57	57	55	50	50	49	44	44	44	39	39
	D	0-7	71	71	58	71	71	52	71	71	47	71	68	42	71	61	38	71	55	35	71	51	32	71	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	~~21~~
		7-27	71	71	63	71	71	56	71	71	50	71	71	45	71	64	41	71	58	37	69	53	34	65	45	29	62	39	25	58	33	33	55	29	28	50	26	25	44	35	~~22~~
		27-45	94	94	94	93	93	93	91	91	91	89	89	89	87	87	87	85	84	84	81	78	78	70	64	64	61	55	55	53	48	48	47	42	42	42	37	37	38	33	33
30	B	0-7	69	69	69	69	69	69	69	69	69	69	69	69	69	69	65	69	69	59	69	69	54	69	69	46	69	62	39	69	54	34	69	47	30	69	41	26	69	37	23
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	71	49	71	66	42	71	57	36	67	50	32	64	44	28	62	39	25
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	89	89	89	87	87	87	84	84	84	78	78	78	72	72	72	67	67	67	62	62	62	57	55	55
	C	0-7	69	69	69	69	69	62	69	69	56	69	69	50	69	69	45	69	67	41	69	60	38	69	51	32	69	44	27	69	38	24	61	33	31	54	29	28	48	26	25
		7-27	71	71	71	71	71	67	71	71	60	71	71	54	71	71	49	71	71	45	71	64	41	69	54	35	66	46	30	62	40	26	59	35	34	56	31	30	53	27	27
		27-45	90	90	90	89	89	89	88	88	88	86	86	86	84	84	84	81	81	81	77	77	77	70	70	70	64	64	64	58	57	57	54	50	50	49	44	44	44	39	39
	D	0-7	71	71	58	71	71	52	71	71	47	71	68	42	71	61	38	71	55	35	71	51	32	71	43	27	68	37	23	59	32	30	51	28	26	45	24	23	40	33	~~21~~
		7-27	71	71	63	71	71	56	71	71	50	71	71	45	71	64	41	71	58	37	69	53	34	65	45	29	62	39	25	58	33	33	55	29	28	50	26	25	44	35	~~22~~
		27-45	90	90	90	88	88	88	86	86	86	84	84	84	80	80	80	76	76	76	72	72	72	65	64	64	59	55	55	53	48	48	47	42	42	42	37	37	38	33	33
40	B	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	46	57	57	39	57	54	34	57	47	30	57	41	26	57	37	23
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	60	42	59	57	36	57	50	32	55	44	28	53	39	25
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	82	82	80	80	80	74	74	74	69	69	69	65	65	65	60	60	60	56	56	56	53	53	53
	C	0-7	57	57	57	57	57	57	57	57	56	57	57	50	57	57	45	57	57	41	57	57	38	57	51	32	57	44	27	57	38	24	57	33	31	54	29	28	48	26	25
		7-27	60	60	60	60	60	60	60	60	60	60	60	54	60	60	49	60	60	45	60	60	41	59	54	35	56	46	30	54	40	26	51	35	34	49	31	30	47	27	27
		27-45	85	85	85	84	84	84	80	80	80	77	77	77	74	74	74	71	71	71	68	68	68	63	63	63	58	58	58	54	54	54	49	49	49	46	44	44	42	39	39
	D	0-7	61	61	58	61	61	52	61	61	47	61	61	42	61	61	38	61	55	35	61	51	32	61	43	27	61	37	23	59	32	30	51	28	26	45	24	23	40	33	~~21~~
		7-27	65	65	63	65	65	56	65	65	50	65	65	45	65	64	41	64	58	37	62	53	34	59	45	29	56	39	25	54	33	33	51	29	28	48	26	25	44	35	~~22~~
		27-45	85	85	85	83	83	83	79	79	79	75	75	75	72	72	72	68	68	68	65	65	65	59	59	59	54	54	54	50	48	48	46	42	42	42	37	37	38	33	33
50	B	0-7	47	47	47	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	47	34	47	47	30	47	41	26	47	37	23
		7-27	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	50	50	36	49	49	32	48	44	28	46	39	25
		27-45	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	73	73	73	70	70	70	66	66	66	62	62	62	59	59	59	55	55	55	52	52	52	49	49	49
	C	0-7	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	38	47	47	32	47	44	27	47	38	24	47	33	31	47	29	28	46	26	25
		7-27	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	45	50	50	41	50	50	35	49	46	30	47	40	26	45	35	34	43	31	30	41	27	27
		27-45	75	75	75	74	74	74	71	71	71	69	69	69	66	66	66	64	64	64	61	61	61	57	57	57	53	53	53	49	49	49	46	46	46	43	43	43	40	39	39
	D	0-7	51	51	51	51	51	51	51	51	47	51	51	42	51	51	38	51	51	35	51	51	32	51	43	27	51	37	23	51	32	30	50	28	26	45	24	23	40	33	~~21~~
		7-27	56	56	56	56	56	56	56	56	50	56	56	45	56	56	41	55	55	37	54	53	34	52	45	29	50	39	25	47	33	33	45	29	28	43	26	25	41	35	~~22~~
		27-45	77	77	77	74	74	74	71	71	71	68	68	68	65	65	65	62	62	62	60	60	60	55	55	55	50	50	50	46	46	46	43	42	42	40	37	37	37	33	33

* 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 7-10	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	Solarhooks ATI
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)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	30	39	39	26	39	37	23
		7-27	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	36	43	43	32	42	42	28	41	39	25
		27-45	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	65	65	63	63	63	60	60	60	57	57	57	54	54	54	51	51	51	48	48	48	45	45	45
	C	0-7	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	39	27	39	38	24	39	33	31	39	29	28	39	26	25
		7-27	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	35	43	43	30	41	40	26	40	35	34	39	31	30	37	27	27
		27-45	67	67	67	66	66	66	64	64	64	62	62	62	60	60	60	58	58	58	56	56	56	52	52	52	49	49	49	46	46	46	43	43	43	40	40	40	37	37	37
	D	0-7	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	43	35	43	43	32	43	43	27	43	37	23	43	32	30	43	28	26	43	24	23	40	33	~~21~~
		7-27	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	37	47	47	34	46	45	29	44	39	25	42	33	33	41	29	28	39	26	25	37	35	~~22~~
		27-45	69	69	69	66	66	66	64	64	64	62	62	62	59	59	59	57	57	57	55	55	55	51	51	51	47	47	47	44	44	44	40	40	40	37	37	37	35	33	33
70	B	0-7	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	26	34	34	23
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32	37	37	32	37	37	28	37	37	25
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	59	59	57	57	57	55	55	55	52	52	52	49	49	49	47	47	47	44	44	44	42	42	42
	C	0-7	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	27	34	34	24	34	33	31	34	29	28	34	26	25
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	37	26	36	35	34	35	31	30	34	27	27
		27-45	61	61	61	60	60	60	58	58	58	56	56	56	55	55	55	53	53	53	51	51	51	48	48	48	45	45	45	43	43	43	40	40	40	38	38	38	35	35	35
	D	0-7	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	37	23	37	32	30	37	28	26	37	24	23	37	33	~~21~~
		7-27	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	34	41	41	29	40	39	25	38	33	33	37	29	28	35	26	25	34	35	~~22~~
		27-45	63	63	63	61	61	61	59	59	59	57	57	57	55	55	55	53	53	53	51	51	51	47	47	47	44	44	44	41	41	41	38	38	38	36	36	36	33	33	33
80	B	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	23
		7-27	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	28	32	32	25
		27-45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	54	54	54	53	53	53	50	50	50	48	48	48	46	46	46	44	44	44	41	41	41	39	39	39
	C	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	31	30	29	28	30	26	25
		7-27	32	32	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	26	32	32	34	32	31	30	31	27	27
		27-45	55	55	55	54	54	54	53	53	53	52	52	52	50	50	50	49	49	49	48	48	48	45	45	45	42	42	42	40	40	40	38	38	38	35	35	35	33	33	33
	D	0-7	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	33	23	33	32	30	33	28	26	33	24	23	33	33	~~21~~
		7-27	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	25	35	33	33	34	29	28	33	26	25	31	35	~~22~~
		27-45	58	58	58	56	56	56	54	54	54	52	52	52	51	51	51	49	49	49	47	47	47	44	44	44	41	41	41	39	39	39	36	36	36	34	34	34	32	32	32
90	B	0-7	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	26	27	27	23
		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	47	47	45	45	45	43	43	43	41	41	41	39	39	39	37	37	37
	C	0-7	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	31	27	27	28	27	26	25
		7-27	29	29	29	29	29	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	29	30	28	27	27
		27-45	49	49	49	49	49	49	49	49	49	48	48	48	47	47	47	45	45	45	44	44	44	42	42	42	40	40	40	38	38	38	35	35	35	34	34	34	32	32	32
	D	0-7	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	29	30	29	28	26	29	24	23	29	33	~~21~~
		7-27	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	25	32	32	33	31	29	28	30	26	25	29	35	~~22~~
		27-45	53	53	53	52	52	52	50	50	50	49	49	49	47	47	47	46	46	46	44	44	44	42	42	42	39	39	39	37	37	37	34	34	34	32	32	32	30	30	30
100	B	0-7	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	23
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25
		27-45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	43	43	42	42	42	40	40	40	38	38	38	37	37	37	35	35	35
	C	0-7	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	31	24	24	28	24	24	25
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	34	26	26	30	26	26	27
		27-45	45	45	45	45	45	45	45	45	45	44	44	44	43	43	43	42	42	42	41	41	41	39	39	39	37	37	37	35	35	35	34	34	34	32	32	32	30	30	30
	D	0-7	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	30	27	27	26	27	24	23	27	33	~~21~~
		7-27	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	25	29	29	33	29	29	28	28	26	25	27	35	~~22~~
		27-45	49	49	49	48	48	48	47	47	47	46	46	46	44	44	44	43	43	43	42	42	42	39	39	39	37	37	37	35	35	35	33	33	33	31	31	31	29	29	29

* 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.