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

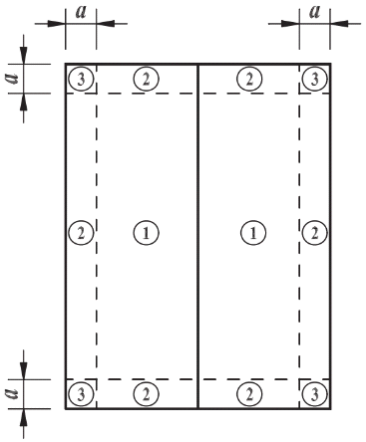
Seismic Design Assumptions

- 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

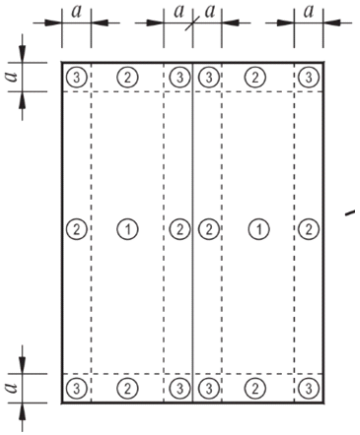
Array Assumptions

- 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.

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

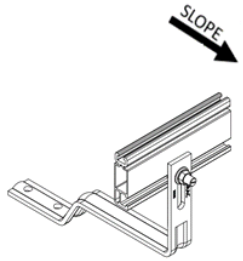


Gable Roofs θ ≤ 7°



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	SM	PRO SERIES	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	1	2	3
0	B	0-7	87	87	87	87	87	75	87	87	63	87	87	54	87	85	47	87	75	42	87	67	38	87	54	32	86	44	27	73	38	24	63	33	21	55	29	18	48	26	25
		7-27	88	88	82	88	88	72	88	88	63	88	88	56	88	87	50	88	77	45	88	69	41	88	57	35	88	47	30	82	40	26	71	35	22	62	31	20	54	27	17
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	84	84	84	78	78	78	68	68	68	59	59	59	52	52	52	46	46	46	41	41	41	37	37	37
	C	0-7	87	87	52	87	80	44	87	69	39	87	60	35	87	53	32	87	48	29	83	43	27	69	36	23	58	31	19	50	27	17	43	23	22	38	20	19	34	18	17
		7-27	88	88	54	88	82	48	88	72	42	88	63	38	88	56	34	88	50	31	88	45	29	77	38	24	65	32	21	56	28	18	48	25	24	42	22	21	37	19	19
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		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	35	33	33	33	30	30	30	28	28	28	26	26	26
	D	0-7	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	37	24	37	36	22	37	30	19	37	26	24	37	22	21	35	19	19	32	17	16	28	23	~~14~~
		7-27	39	39	39	39	39	39	39	39	35	39	39	32	39	39	29	39	39	26	38	38	24	36	32	20	34	27	17	33	24	23	31	21	20	29	18	18	28	24	~~16~~
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40	36	36	36	33	33	33	30	30	30	28	28	28	25	25	25	23	23	23
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		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30
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		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	31	31	31	28	28	28	26	26	26	24	24	24	22	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.

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ASCE 7-10	II	30 ft	Ss = 1.25	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	SM	PRO SERIES	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	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	24	24	24	21	24	24	18	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	22	26	26	20	25	25	17
		27-45	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	26
	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	23	24	24	19	24	24	17	24	23	22	24	20	19	24	18	17
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		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	28	20	27	27	17	26	24	23	25	21	20	24	18	18	23	24	~~16~~
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		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	22	22	22	20	22	22	17
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		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	18	18	18	17	18	18	22	18	18	19	18	18	17
		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	18	20	20	24	19	19	21	19	19	19
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	D	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	19	20	20	24	20	20	21	20	19	19	20	17	16	20	23	~~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	20	22	22	17	21	21	23	20	20	20	20	18	18	19	24	~~16~~
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	20	20	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	24
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
		27-45	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
	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	16	16	16	22	16	16	19	16	16	17
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	24	17	17	21	17	17	19
		27-45	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
	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	18	18	18	24	18	18	21	18	18	19	18	17	16	18	23	~~14~~
		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	17	19	19	23	19	19	20	18	18	18	18	24	~~16~~
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	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	22
		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	26
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	22	14	14	19	14	14	17
		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	24	26	26	21	26	26	19
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	24	16	16	21	16	16	19	16	16	16	16	23	~~14~~
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	17	20	17	17	18	16	24	~~16~~
		27-45	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

* 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	SM	PRO SERIES	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	1	2	3
0	B	0-7	144	144	144	144	144	144	144	144	144	144	144	142	144	144	106	144	144	78	144	139	64	144	104	54	142	80	46	129	64	40	110	56	35	95	49	31	83	43	27
		7-27	145	145	143	145	145	135	145	145	116	145	145	101	145	145	89	145	142	79	145	136	70	145	105	58	145	84	50	140	68	43	124	59	38	107	52	33	93	46	30
		27-45	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	144	144	144	133	133	133	115	115	115	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	144	144	140	144	144	89	144	141	67	144	125	60	144	104	54	144	88	49	141	76	45	121	60	38	101	52	33	85	45	28	73	39	37	64	34	33	57	31	29
		7-27	145	145	97	145	145	83	145	139	73	145	121	64	145	104	58	145	91	53	145	80	48	137	64	41	114	55	35	97	47	30	83	41	40	72	36	35	63	32	31
		27-45	149	149	149	149	149	149	136	136	136	125	125	125	115	115	115	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	144	144	75	144	134	62	144	108	55	144	90	50	141	76	45	133	66	41	119	60	38	98	51	32	82	43	27	70	38	36	61	33	31	53	29	28	47	39	25
		7-27	145	142	77	145	128	66	145	108	59	145	93	54	145	81	49	142	71	44	136	63	41	111	54	34	93	46	29	79	40	39	68	35	34	59	31	30	53	41	26
		27-45	142	142	142	129	129	129	117	117	117	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
10	B	0-7	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	78	102	102	64	102	102	54	102	80	46	102	64	40	102	56	35	95	49	31	83	43	27
		7-27	103	103	103	103	103	103	103	103	103	103	103	101	103	103	89	103	103	79	103	103	70	103	103	58	103	84	50	103	68	43	102	59	38	96	52	33	89	46	30
		27-45	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	141	141	141	133	133	133	115	115	115	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	102	102	102	102	102	89	102	102	67	102	102	60	102	102	54	102	88	49	102	76	45	102	60	38	101	52	33	85	45	28	73	39	37	64	34	33	57	31	29
		7-27	103	103	97	103	103	83	103	103	73	103	103	64	103	103	58	103	91	53	103	80	48	103	64	41	98	55	35	91	47	30	83	41	40	72	36	35	63	32	31
		27-45	144	144	144	144	144	144	135	135	135	125	125	125	115	115	115	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	102	102	75	102	102	62	102	102	55	102	90	50	102	76	45	102	66	41	102	60	38	98	51	32	82	43	27	70	38	36	61	33	31	53	29	28	47	39	25
		7-27	103	103	77	103	103	66	103	103	59	103	93	54	103	81	49	103	71	44	103	63	41	97	54	34	89	46	29	79	40	39	68	35	34	59	31	30	53	41	26
		27-45	142	142	142	129	129	129	117	117	117	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
20	B	0-7	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	54	72	72	46	72	64	40	72	56	35	72	49	31	72	43	27
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	100	100	100	91	91	91	84	84	84	76	76	76	69	69	69	62	62	62
	C	0-7	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	49	72	72	45	72	60	38	72	52	33	72	45	28	72	39	37	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	40	57	36	35	54	32	31
		27-45	106	106	106	106	106	106	106	106	106	105	105	105	100	100	100	95	95	95	90	90	90	81	81	81	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	36	61	33	31	53	29	28	47	39	25
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	39	56	35	34	53	31	30	50	41	26
		27-45	113	113	113	111	111	111	105	105	105	98	98	98	93	93	93	87	87	87	82	82	82	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
30	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	54	70	70	46	70	64	40	70	56	35	70	49	31	70	43	27
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	73	73	68	68	68	63	63	63	58	58	58
	C	0-7	70	70	70	70	70	70	70	70	67	70	70	60	70	70	54	70	70	49	70	70	45	70	60	38	70	52	33	70	45	28	70	39	37	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	40	57	36	35	54	32	31
		27-45	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	71	71	71	65	65	65	60	60	60	55	55	55	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	36	61	33	31	53	29	28	47	39	25
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	39	56	35	34	53	31	30	50	41	26
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	82	82	82	77	77	77	73	73	73	66	66	66	60	60	60	54	54	54	48	48	48	43	43	43	38	38	38
40	B	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	46	58	58	40	58	56	35	58	49	31	58	43	27
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	50	60	60	43	58	58	38	56	52	33	54	46	30
		27-45	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	61	61	57	57	57	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	49	58	58	45	58	58	38	58	52	33	58	45	28	58	39	37	56	34	33	54	31	29
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	48	59	59	41	57	55	35	55	47	30	52	41	40	50	36	35	48	32	31
		27-45	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	59	59	54	54	54	50	50	50	47	47	47	43	43	43
	D	0-7	62	62	62	62	62	62	62	62	55	62	62	50	62	62	45	62	62	41	62	60	38	62	51	32	62	43	27	61	38	36	59	33	31	53	29	28	47	39	25
		7-27	66	66	66	66	66	66	66	66	59	66	66	54	66	66	49	65	65	44	63	63	41	60	54	34	57	46	29	55	40	39	52	35	34	49	31	30	47	41	26
		27-45	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	66	66	61	61	61	55	55	55	51	51	51	47	47	47	43	43	43	38	38	38
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	47	47	47	46	47	47	40	47	47	35	47	47	31	47	43	27
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	43	50	50	38	49	49	33	47	46	30
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50
	C	0-7	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	47	47	33	47	45	28	47	39	37	47	34	33	47	31	29
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	49	49	35	48	47	30	46	41	40	44	36	35	42	32	31
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	47	47	47	43	43	43	40	40	40
	D	0-7	52	52	52	52	52	52	52	52	52	52	52	50	52	52	45	52	52	41	52	52	38	52	51	32	52	43	27	52	38	36	51	33	31	49	29	28	47	39	25
		7-27	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	56	56	44	55	55	41	53	53	34	50	46	29	48	40	39	46	35	34	44	31	30	42	41	26
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	51	51	47	47	47	44	44	44	40	40	40	37	37	37

* 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	SM	PRO SERIES	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	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	40	40	40	35	40	40	31	40	40	27
		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	43	43	43	43	43	43	43	43	43	38	43	43	33	42	42	30
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	28	40	39	37	40	34	33	40	31	29
		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	41	43	43	35	42	42	30	41	41	40	39	36	35	38	32	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	41	41	38	38	38
	D	0-7	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	38	44	44	32	44	43	27	44	38	36	44	33	31	44	29	28	42	39	25
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* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image.

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	SM	PRO SERIES	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	1	2	3
0	B	0-7	73	73	73	73	73	63	73	73	53	73	73	45	73	71	39	73	63	35	73	56	32	73	45	27	72	37	23	61	32	20	53	28	17	46	24	23	40	22	20
		7-27	73	73	68	73	73	60	73	73	53	73	73	47	73	72	42	73	64	38	73	58	34	73	47	29	73	39	25	69	33	21	59	29	19	51	26	16	45	23	22
		27-45	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	70	70	65	65	65	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	73	73	43	73	66	37	73	58	33	73	51	29	73	45	27	73	40	24	69	36	22	58	30	19	49	26	16	42	22	21	36	19	18	32	17	~~16~~	28	23	~~14~~
		7-27	73	73	45	73	68	40	73	60	35	73	53	32	73	47	29	73	42	26	73	38	24	65	32	20	55	27	17	47	23	23	40	20	20	35	18	17	31	24	~~16~~
		27-45	75	75	75	73	73	73	67	67	67	61	61	61	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	73	61	34	73	53	31	73	46	27	73	40	25	70	36	22	63	33	20	57	30	19	48	25	24	40	21	20	35	19	18	30	24	~~15~~	26	22	~~14~~	23	19	~~12~~
		7-27	73	63	37	73	55	33	73	48	29	73	43	27	73	38	24	71	34	22	64	31	20	53	27	17	45	23	22	39	20	19	33	17	17	29	23	~~15~~	26	20	~~13~~
		27-45	69	69	69	63	63	63	58	58	58	53	53	53	48	48	48	45	45	45	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
10	B	0-7	52	52	52	52	52	52	52	52	52	52	52	45	52	52	39	52	52	35	52	52	32	52	45	27	52	37	23	52	32	20	52	28	17	46	24	23	40	22	20
		7-27	52	52	52	52	52	52	52	52	52	52	52	47	52	52	42	52	52	38	52	52	34	52	47	29	52	39	25	52	33	21	49	29	19	46	26	16	43	23	22
		27-45	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	69	69	69	65	65	65	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	52	52	43	52	52	37	52	52	33	52	51	29	52	45	27	52	40	24	52	36	22	52	30	19	49	26	16	42	22	21	36	19	18	32	17	~~16~~	28	23	~~14~~
		7-27	52	52	45	52	52	40	52	52	35	52	52	32	52	47	29	52	42	26	52	38	24	51	32	20	47	27	17	44	23	23	40	20	20	35	18	17	31	24	~~16~~
		27-45	73	73	73	71	71	71	67	67	67	61	61	61	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
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	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	22	21	24	19	18	24	17	~~16~~	23	23	~~14~~
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	20	25	25	17	24	23	23	23	20	20	22	18	17	21	24	~~16~~
		27-45	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	23	23	23	22	22	22	20	20	20
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	26	19	26	25	24	26	21	20	26	19	18	25	24	~~15~~	25	22	~~14~~	23	19	~~12~~
		7-27	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	27	20	26	26	17	25	23	22	24	20	19	23	17	17	22	23	~~15~~	21	20	~~13~~
		27-45	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	26	26	24	24	24	22	22	22	20	20	20	19	19	19

* 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	SM	PRO SERIES	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	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	20	20	20	17	20	20	23	20	20	20
		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	21	22	22	19	21	21	16	21	21	22
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	C	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	19	20	20	16	20	20	21	20	19	18	20	17	~~16~~	20	23	~~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	20	22	22	17	21	21	23	20	20	20	20	18	17	19	24	~~16~~
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	20	20	19	19	19
	D	0-7	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	19	22	22	24	22	21	20	22	19	18	22	24	~~15~~	22	22	~~14~~	21	19	~~12~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	23	23	17	22	22	22	21	20	19	21	17	~~17~~	20	23	~~15~~	19	20	~~13~~
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	20	20	20	19	19	19	18	18	18
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	17	17	17	23	17	17	20
		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	19	19	19	19	19	19	16	19	19	22
		27-45	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	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	17	17	17	16	17	17	21	17	17	18	17	17	~~16~~	17	23	~~14~~
		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	17	19	19	23	18	18	20	18	18	17	17	24	~~16~~
		27-45	19	19	19	19	19	19	19	19	19	19	19	19	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	18	18
	D	0-7	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	24	19	19	20	19	19	18	19	24	~~15~~	19	22	~~14~~	19	19	~~12~~
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	20	20	22	19	19	19	19	17	~~17~~	18	23	~~15~~	17	20	~~13~~
		27-45	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	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	23	15	15	20
		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	25	27	27	22
		27-45	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	25
	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	15	15	15	21	15	15	18	15	15	~~16~~	15	23	~~14~~
		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	26	27	27	23	27	27	20	27	27	17	27	24	~~16~~
		27-45	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	25
	D	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	24	17	17	20	17	17	18	17	24	~~15~~	17	22	~~14~~	17	19	~~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	17	18	18	22	18	18	19	17	17	~~17~~	16	23	~~15~~	16	20	~~13~~
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	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	20	13	13	20
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	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	20	13	13	18	13	13	~~16~~	13	20	~~14~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	17	24	22	~~16~~
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	D	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	23	15	15	20	15	15	18	15	23	~~15~~	15	22	~~14~~	15	19	~~12~~
		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	22	26	26	19	26	26	17	26	23	~~15~~	26	20	~~13~~
		27-45	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	23	23	23
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	18	12	12	18
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	18	12	12	~~16~~	12	18	~~14~~
		7-27	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	20	21	21	17	21	20	~~16~~
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	20	13	13	20	13	13	18	13	20	~~15~~	13	20	~~14~~	13	19	~~12~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17	24	21	~~15~~	24	20	~~13~~
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22

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Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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			Roof Wind Zone																																						
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0	B	0-7	141	141	141	141	141	141	141	141	141	141	141	141	141	141	97	141	141	74	141	138	63	141	100	53	141	77	45	125	62	39	107	54	34	93	48	30	81	43	40
		7-27	141	141	141	141	141	131	141	141	113	141	141	98	141	141	86	141	141	76	141	132	68	141	102	57	141	81	49	139	66	42	121	58	37	105	51	33	91	45	44
		27-45	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	140	140	130	130	130	113	113	113	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	141	141	139	141	141	83	141	140	65	141	120	58	141	100	53	141	85	48	140	73	44	118	59	37	98	51	32	83	44	42	72	38	36	62	34	32	55	45	29
		7-27	141	141	94	141	141	81	141	138	71	141	117	63	141	101	57	141	88	52	141	78	47	134	62	40	111	53	34	94	46	45	81	40	39	70	36	35	61	32	31
		27-45	146	146	146	146	146	146	133	133	133	122	122	122	112	112	112	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	141	141	71	141	128	60	141	104	54	141	87	49	140	74	44	129	64	40	117	59	37	96	50	31	80	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	141	140	75	141	124	65	141	105	58	141	90	52	141	78	48	141	69	43	132	62	40	109	52	34	91	45	43	77	39	38	66	34	33	58	45	29	52	40	26
		27-45	138	138	138	126	126	126	114	114	114	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
10	B	0-7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	100	100	74	100	100	63	100	100	53	100	77	45	100	62	39	100	54	34	93	48	30	81	43	40
		7-27	101	101	101	101	101	101	101	101	101	101	101	98	101	101	86	101	101	76	101	101	68	101	101	57	101	81	49	101	66	42	99	58	37	93	51	33	87	45	44
		27-45	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	137	137	130	130	130	113	113	113	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	100	100	100	100	100	83	100	100	65	100	100	58	100	100	53	100	85	48	100	73	44	100	59	37	98	51	32	83	44	42	72	38	36	62	34	32	55	45	29
		7-27	101	101	94	101	101	81	101	101	71	101	101	63	101	101	57	101	88	52	101	78	47	101	62	40	96	53	34	88	46	45	81	40	39	70	36	35	61	32	31
		27-45	141	141	141	141	141	141	132	132	132	122	122	122	112	112	112	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	100	100	71	100	100	60	100	100	54	100	87	49	100	74	44	100	64	40	100	59	37	96	50	31	80	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	101	101	75	101	101	65	101	101	58	101	90	52	101	78	48	101	69	43	101	62	40	95	52	34	87	45	43	77	39	38	66	34	33	58	45	29	52	40	26
		27-45	138	138	138	126	126	126	114	114	114	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
20	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	53	70	70	45	70	62	39	70	54	34	70	48	30	70	43	40
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	44
		27-45	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	98	98	98	89	89	89	82	82	82	75	75	75	67	67	67	60	60	60
	C	0-7	70	70	70	70	70	70	70	70	65	70	70	58	70	70	53	70	70	48	70	70	44	70	59	37	70	51	32	70	44	42	70	38	36	62	34	32	55	45	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	45	59	40	39	56	36	35	53	32	31
		27-45	104	104	104	104	104	104	104	104	104	103	103	103	97	97	97	92	92	92	88	88	88	79	79	79	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	43	58	39	38	55	34	33	52	45	29	49	40	26
		27-45	111	111	111	108	108	108	102	102	102	96	96	96	91	91	91	85	85	85	80	80	80	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
30	B	0-7	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	53	68	68	45	68	62	39	68	54	34	68	48	30	68	43	40
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	44
		27-45	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	72	72	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	65	68	68	58	68	68	53	68	68	48	68	68	44	68	59	37	68	51	32	68	44	42	68	38	36	62	34	32	55	45	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	45	59	40	39	56	36	35	53	32	31
		27-45	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	70	70	70	63	63	63	58	58	58	53	53	53	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	43	58	39	38	55	34	33	52	45	29	49	40	26
		27-45	83	83	83	83	83	83	83	83	83	83	83	83	80	80	80	76	76	76	72	72	72	65	65	65	59	59	59	53	53	53	47	47	47	42	42	42	38	38	38
40	B	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	45	57	57	39	57	54	34	57	48	30	57	43	40
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	59	59	42	57	57	37	55	51	33	53	45	44
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	56	56	56	52	52	52
	C	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	57	44	57	57	37	57	51	32	57	44	42	56	38	36	55	34	32	53	45	29
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	47	58	58	40	56	53	34	53	46	45	51	40	39	49	36	35	47	32	31
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	58	58	53	53	53	49	49	49	46	46	46	42	42	42
	D	0-7	61	61	61	61	61	60	61	61	54	61	61	49	61	61	44	61	61	40	61	59	37	61	50	31	61	42	40	60	37	35	58	32	31	52	43	27	46	38	24
		7-27	64	64	64	64	64	64	64	64	58	64	64	52	64	64	48	63	63	43	62	62	40	59	52	34	56	45	43	53	39	38	51	34	33	48	45	29	45	40	26
		27-45	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	65	65	59	59	59	54	54	54	50	50	50	45	45	45	42	42	42	38	38	38
50	B	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	34	46	46	30	46	43	40
		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	50	50	50	49	50	50	42	49	49	37	48	48	33	46	45	44
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	48	48
	C	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37	46	46	32	46	44	42	46	38	36	46	34	32	46	45	29
		7-27	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	40	48	48	34	47	46	45	45	40	39	43	36	35	41	32	31
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	46	46	46	42	42	42	40	40	40
	D	0-7	51	51	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	40	51	51	37	51	50	31	51	42	40	51	37	35	50	32	31	48	43	27	46	38	24
		7-27	55	55	55	55	55	55	55	55	55	55	55	52	55	55	48	55	55	43	54	54	40	51	51	34	49	45	43	47	39	38	45	34	33	43	45	29	41	40	26
		27-45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	46	46	46	43	43	43	39	39	39	36	36	36

* 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	SM	PRO SERIES	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	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	39	39	39	39	39	39	34	39	39	30	39	39	40
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	33	41	41	44
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
	C	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	42	39	38	36	39	34	32	39	45	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	41	41	45	40	40	39	38	36	35	37	32	31
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	40	40	37	37	37
	D	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	37	43	43	31	43	42	40	43	37	35	43	32	31	43	43	27	42	38	24
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	40	46	46	34	44	44	43	42	39	38	40	34	33	39	45	29	37	40	26
		27-45	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	43	43	40	40	40	37	37	37	35	35	35
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	34	34	34	30	34	34	40
		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	37	37	37	37	37	37	37	37	37	33	37	37	44
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
	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	34	34	34	32	34	34	42	34	34	36	34	34	32	34	45	29
		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	34	37	37	45	36	36	39	35	35	35	34	32	31
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	35
	D	0-7	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	40	37	37	35	37	32	31	37	43	27	37	38	24
		7-27	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	43	38	38	38	37	34	33	35	45	29	34	40	26
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	38	38	35	35	35	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	30	30	30	40
		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	52	52	52	52	52	52	52	52	52	52	52	52	49	52	52	44
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	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	30	30	30	42	30	30	36	30	30	32	30	45	29
		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	52	52	52	52	52	52	45	52	52	39	52	52	35	52	48	31
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	D	0-7	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	40	33	33	35	33	32	31	33	43	27	33	38	24
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	43	35	35	38	34	34	33	32	45	29	31	40	26
		27-45	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	53	53	50	50	50
90	B	0-7	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	40
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	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	40	26	26	36	26	26	32	26	40	29
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	46	35	46	46	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	D	0-7	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	40	29	29	35	29	29	31	29	43	27	29	38	24
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	43	51	51	38	51	51	33	51	45	29	51	40	26
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	48	48	48	45	45	45
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	36
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	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	36	24	24	36	24	24	32	24	36	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	39	42	42	35	42	42	31
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	D	0-7	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	40	26	26	35	26	26	31	26	40	27	26	38	24
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	38	46	46	33	46	42	29	46	40	26
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	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	43	43

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UNIRAC

ASCE 7-10	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	SM	PRO SERIES	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	1	2	3
0	B	0-7	87	87	87	87	87	75	87	87	63	87	87	54	87	85	47	87	75	42	87	67	38	87	54	32	86	44	27	73	38	24	63	33	21	55	29	18	48	26	25
		7-27	87	87	82	87	87	72	87	87	63	87	87	56	87	87	50	87	77	45	87	69	41	87	57	35	87	47	30	82	40	26	71	35	22	62	31	20	54	27	17
		27-45	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	78	78	68	68	68	59	59	59	52	52	52	46	46	46	41	41	41	37	37	37
	C	0-7	87	87	52	87	80	44	87	69	39	87	60	35	87	53	32	87	48	29	83	43	27	69	36	23	58	31	19	50	27	17	43	23	22	38	20	19	34	18	17
		7-27	87	87	54	87	82	48	87	72	42	87	63	38	87	56	34	87	50	31	87	45	29	77	38	24	65	32	21	56	28	18	48	25	24	42	22	21	37	19	19
		27-45	81	81	81	81	81	81	80	80	80	73	73	73	67	67	67	62	62	62	58	58	58	50	50	50	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	87	73	41	87	63	37	87	55	33	87	48	30	84	43	27	75	39	24	68	36	22	57	30	19	48	26	24	41	22	21	36	19	19	32	17	16	28	23	~~14~~
		7-27	87	76	44	87	66	39	87	58	35	87	51	32	87	46	29	85	41	26	77	38	24	64	32	20	54	27	17	46	24	23	40	21	20	35	18	18	31	24	~~16~~
		27-45	81	81	81	75	75	75	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
10	B	0-7	62	62	62	62	62	62	62	62	62	62	62	54	62	62	47	62	62	42	62	62	38	62	54	32	62	44	27	62	38	24	62	33	21	55	29	18	48	26	25
		7-27	62	62	62	62	62	62	62	62	62	62	62	56	62	62	50	62	62	45	62	62	41	62	57	35	62	47	30	62	40	26	59	35	22	55	31	20	52	27	17
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	59	59	59	52	52	52	46	46	46	41	41	41	37	37	37
	C	0-7	62	62	52	62	62	44	62	62	39	62	60	35	62	53	32	62	48	29	62	43	27	62	36	23	58	31	19	50	27	17	43	23	22	38	20	19	34	18	17
		7-27	62	62	54	62	62	48	62	62	42	62	62	38	62	56	34	62	50	31	62	45	29	61	38	24	56	32	21	52	28	18	48	25	24	42	22	21	37	19	19
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	67	67	67	62	62	62	58	58	58	50	50	50	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	62	62	41	62	62	37	62	55	33	62	48	30	62	43	27	62	39	24	62	36	22	57	30	19	48	26	24	41	22	21	36	19	19	32	17	16	28	23	~~14~~
		7-27	62	62	44	62	62	39	62	58	35	62	51	32	62	46	29	62	41	26	61	38	24	56	32	20	52	27	17	46	24	23	40	21	20	35	18	18	31	24	~~16~~
		27-45	71	71	71	71	71	71	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
20	B	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	43	32	43	43	27	43	38	24	43	33	21	43	29	18	43	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	43	40	26	41	35	22	39	31	20	38	27	17
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	C	0-7	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	43	43	29	43	43	27	43	36	23	43	31	19	43	27	17	43	23	22	38	20	19	34	18	17
		7-27	43	43	43	43	43	43	43	43	42	43	43	38	43	43	34	43	43	31	43	43	29	42	38	24	40	32	21	38	28	18	36	25	24	34	22	21	32	19	19
		27-45	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	53	53	48	48	48	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	43	43	41	43	43	37	43	43	33	43	43	30	43	43	27	43	39	24	43	36	22	43	30	19	43	26	24	41	22	21	36	19	19	32	17	16	28	23	~~14~~
		7-27	43	43	43	43	43	39	43	43	35	43	43	32	43	43	29	43	41	26	42	38	24	40	32	20	37	27	17	35	24	23	33	21	20	32	18	18	30	24	~~16~~
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	52	52	52	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
30	B	0-7	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	32	42	42	27	42	38	24	42	33	21	42	29	18	42	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	43	40	26	41	35	22	39	31	20	38	27	17
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	41	41	38	38	38	35	35	35
	C	0-7	42	42	42	42	42	42	42	42	39	42	42	35	42	42	32	42	42	29	42	42	27	42	36	23	42	31	19	42	27	17	42	23	22	38	20	19	34	18	17
		7-27	43	43	43	43	43	43	43	43	42	43	43	38	43	43	34	43	43	31	43	43	29	42	38	24	40	32	21	38	28	18	36	25	24	34	22	21	32	19	19
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	42	42	39	39	39	36	36	36	33	33	33	30	30	30	27	27	27
	D	0-7	43	43	41	43	43	37	43	43	33	43	43	30	43	43	27	43	39	24	43	36	22	43	30	19	43	26	24	41	22	21	36	19	19	32	17	16	28	23	~~14~~
		7-27	43	43	43	43	43	39	43	43	35	43	43	32	43	43	29	43	41	26	42	38	24	40	32	20	37	27	17	35	24	23	33	21	20	32	18	18	30	24	~~16~~
		27-45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	40	40	40	36	36	36	32	32	32	29	29	29	26	26	26	23	23	23
40	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	32	35	35	27	35	35	24	35	33	21	35	29	18	35	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	36	36	26	35	35	22	34	31	20	32	27	17
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	34	34	32	32	32
	C	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	35	27	35	35	23	35	31	19	35	27	17	34	23	22	33	20	19	32	18	17
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	37	29	36	36	24	34	32	21	33	28	18	31	25	24	30	22	21	28	19	19
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	35	33	33	33	30	30	30	28	28	28	26	26	26
	D	0-7	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	37	24	37	36	22	37	30	19	37	26	24	37	22	21	35	19	19	32	17	16	28	23	~~14~~
		7-27	39	39	39	39	39	39	39	39	35	39	39	32	39	39	29	39	39	26	38	38	24	36	32	20	34	27	17	33	24	23	31	21	20	29	18	18	28	24	~~16~~
		27-45	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	36	36	33	33	33	30	30	30	28	28	28	25	25	25	23	23	23
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	28	28	28	27	28	28	24	28	28	21	28	28	18	28	26	25
		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	31	31	31	30	31	31	26	30	30	22	29	29	20	28	27	17
		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30
	C	0-7	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	23	28	28	19	28	27	17	28	23	22	28	20	19	28	18	17
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	24	30	30	21	28	28	18	27	25	24	26	22	21	25	19	19
		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	28	28	28	26	26	26	24	24	24
	D	0-7	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	31	24	31	31	22	31	30	19	31	26	24	31	22	21	30	19	19	30	17	16	28	23	~~14~~
		7-27	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	26	33	33	24	31	31	20	30	27	17	29	24	23	27	21	20	26	18	18	25	24	~~16~~
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	31	31	31	28	28	28	26	26	26	24	24	24	22	22	22

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UNIRAC

ASCE 7-10	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	SM	PRO SERIES	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	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	24	24	24	21	24	24	18	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	22	26	26	20	25	25	17
		27-45	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	26
	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	23	24	24	19	24	24	17	24	23	22	24	20	19	24	18	17
		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	24	26	26	21	25	25	18	24	24	24	23	22	21	23	19	19
		27-45	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	24	24	24	23	23	23
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	19	26	26	24	26	22	21	26	19	19	26	17	16	25	23	~~14~~
		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	28	20	27	27	17	26	24	23	25	21	20	24	18	18	23	24	~~16~~
		27-45	29	29	29	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	26	26	25	25	25	23	23	23	21	21	21
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	21	21	21	21	21	21	18	21	21	25
		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	22	22	22	20	22	22	17
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	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	21	21	21	19	21	21	17	21	21	22	21	20	19	21	18	17
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		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	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	23	23	23	22	23	23	19	23	23	24	23	22	21	23	19	19	23	17	16	23	23	~~14~~
		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	24	24	17	23	23	23	22	21	20	21	18	18	21	24	~~16~~
		27-45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	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	18	18	18	25
		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	20	20	20	20	20	20	17
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	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	18	18	18	17	18	18	22	18	18	19	18	18	17
		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	18	20	20	24	19	19	21	19	19	19
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	D	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	19	20	20	24	20	20	21	20	19	19	20	17	16	20	23	~~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	20	22	22	17	21	21	23	20	20	20	20	18	18	19	24	~~16~~
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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	24
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
		27-45	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
	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	16	16	16	22	16	16	19	16	16	17
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	24	17	17	21	17	17	19
		27-45	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
	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	18	18	18	24	18	18	21	18	18	19	18	17	16	18	23	~~14~~
		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	17	19	19	23	19	19	20	18	18	18	18	24	~~16~~
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	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	22
		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	26
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	22	14	14	19	14	14	17
		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	24	26	26	21	26	26	19
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	24	16	16	21	16	16	19	16	16	16	16	23	~~14~~
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	17	20	17	17	18	16	24	~~16~~
		27-45	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

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SPAN TABLES

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0	B	0-7	144	144	144	144	144	144	144	144	144	144	144	142	144	144	106	144	144	78	144	139	64	144	104	54	142	80	46	129	64	40	110	56	35	95	49	31	83	43	27
		7-27	137	137	137	137	137	135	137	137	116	137	137	101	137	137	89	137	137	79	137	136	70	137	105	58	137	84	50	137	68	43	124	59	38	107	52	33	93	46	30
		27-45	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	115	115	115	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	144	144	140	144	144	89	144	141	67	144	125	60	144	104	54	144	88	49	141	76	45	121	60	38	101	52	33	85	45	28	73	39	37	64	34	33	57	31	29
		7-27	137	137	97	137	137	83	137	137	73	137	121	64	137	104	58	137	91	53	137	80	48	137	64	41	114	55	35	97	47	30	83	41	40	72	36	35	63	32	31
		27-45	127	127	127	127	127	127	127	127	127	125	125	125	115	115	115	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	144	144	75	144	134	62	144	108	55	144	90	50	141	76	45	133	66	41	119	60	38	98	51	32	82	43	27	70	38	36	61	33	31	53	29	28	47	39	~~25~~
		7-27	137	137	77	137	128	66	137	108	59	137	93	54	137	81	49	137	71	44	136	63	41	111	54	34	93	46	29	79	40	39	68	35	34	59	31	30	53	41	~~26~~
		27-45	127	127	127	127	127	127	117	117	117	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
10	B	0-7	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	78	102	102	64	102	102	54	102	80	46	102	64	40	102	56	35	95	49	31	83	43	27
		7-27	103	103	103	103	103	103	103	103	103	103	103	101	103	103	89	103	103	79	103	103	70	103	103	58	103	84	50	103	68	43	102	59	38	96	52	33	89	46	30
		27-45	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	102	102	102	102	102	89	102	102	67	102	102	60	102	102	54	102	88	49	102	76	45	102	60	38	101	52	33	85	45	28	73	39	37	64	34	33	57	31	29
		7-27	103	103	97	103	103	83	103	103	73	103	103	64	103	103	58	103	91	53	103	80	48	103	64	41	98	55	35	91	47	30	83	41	40	72	36	35	63	32	31
		27-45	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	102	102	75	102	102	62	102	102	55	102	90	50	102	76	45	102	66	41	102	60	38	98	51	32	82	43	27	70	38	36	61	33	31	53	29	28	47	39	~~25~~
		7-27	103	103	77	103	103	66	103	103	59	103	93	54	103	81	49	103	71	44	103	63	41	97	54	34	89	46	29	79	40	39	68	35	34	59	31	30	53	41	~~26~~
		27-45	114	114	114	114	114	114	114	114	114	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
20	B	0-7	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	54	72	72	46	72	64	40	72	56	35	72	49	31	72	43	27
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	84	84	76	76	76	69	69	69	62	62	62
	C	0-7	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	49	72	72	45	72	60	38	72	52	33	72	45	28	72	39	37	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	40	57	36	35	54	32	31
		27-45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	81	81	81	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	36	61	33	31	53	29	28	47	39	~~25~~
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	39	56	35	34	53	31	30	50	41	~~26~~
		27-45	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	87	87	87	82	82	82	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
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		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	68	68	63	63	63	58	58	58
	C	0-7	70	70	70	70	70	70	70	70	67	70	70	60	70	70	54	70	70	49	70	70	45	70	60	38	70	52	33	70	45	28	70	39	37	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	40	57	36	35	54	32	31
		27-45	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	71	71	65	65	65	60	60	60	55	55	55	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	36	61	33	31	53	29	28	47	39	~~25~~
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	39	56	35	34	53	31	30	50	41	~~26~~
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	73	73	66	66	66	60	60	60	54	54	54	48	48	48	43	43	43	38	38	38
40	B	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	46	58	58	40	58	56	35	58	49	31	58	43	27
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	50	60	60	43	58	58	38	56	52	33	54	46	30
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	57	57	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	49	58	58	45	58	58	38	58	52	33	58	45	28	58	39	37	56	34	33	54	31	29
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	48	59	59	41	57	55	35	55	47	30	52	41	40	50	36	35	48	32	31
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	59	59	54	54	54	50	50	50	47	47	47	43	43	43
	D	0-7	62	62	62	62	62	62	62	62	55	62	62	50	62	62	45	62	62	41	62	60	38	62	51	32	62	43	27	61	38	36	59	33	31	53	29	28	47	39	~~25~~
		7-27	66	66	66	66	66	66	66	66	59	66	66	54	66	66	49	65	65	44	63	63	41	60	54	34	57	46	29	55	40	39	52	35	34	49	31	30	47	41	~~26~~
		27-45	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	61	61	55	55	55	51	51	51	47	47	47	43	43	43	38	38	38
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	47	47	47	46	47	47	40	47	47	35	47	47	31	47	43	27
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	43	50	50	38	49	49	33	47	46	30
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50
	C	0-7	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	47	47	33	47	45	28	47	39	37	47	34	33	47	31	29
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	49	49	35	48	47	30	46	41	40	44	36	35	42	32	31
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	47	47	47	43	43	43	40	40	40
	D	0-7	52	52	52	52	52	52	52	52	52	52	52	50	52	52	45	52	52	41	52	52	38	52	51	32	52	43	27	52	38	36	51	33	31	49	29	28	47	39	~~25~~
		7-27	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	56	56	44	55	55	41	53	53	34	50	46	29	48	40	39	46	35	34	44	31	30	42	41	~~26~~
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	51	51	47	47	47	44	44	44	40	40	40	37	37	37

* 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	SM	PRO SERIES	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	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	40	40	40	35	40	40	31	40	40	27
		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	43	43	43	43	43	43	43	43	43	38	43	43	33	42	42	30
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	28	40	39	37	40	34	33	40	31	29
		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	41	43	43	35	42	42	30	41	41	40	39	36	35	38	32	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	41	41	38	38	38
	D	0-7	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	38	44	44	32	44	43	27	44	38	36	44	33	31	44	29	28	42	39	25
		7-27	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	48	48	41	47	47	34	45	45	29	43	40	39	41	35	34	40	31	30	38	41	26
		27-45	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	44	44	41	41	41	38	38	38	35	35	35
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	35	35	35	31	35	35	27
		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	37	37	37	37	37	37	37	37	37	33	37	37	30
		27-45	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	C	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	28	35	35	37	35	34	33	35	31	29
		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	35	37	37	30	37	37	40	36	36	35	34	32	31
		27-45	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	36	36
	D	0-7	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	27	38	38	36	38	33	31	38	29	28	38	39	25
		7-27	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	34	40	40	29	39	39	39	38	35	34	36	31	30	35	41	26
		27-45	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	39	39	36	36	36	34	34	34
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	30	30	30	27
		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	33	33	33	30
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
	C	0-7	30	30	30	30	30	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	37	30	30	33	30	30	29
		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	30	33	33	40	32	32	35	31	31	31
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	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	34	34	34	32	34	34	27	34	34	36	34	33	31	34	29	28	34	39	25
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	29	36	36	39	34	34	34	33	31	30	32	41	26
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	34	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	27	27	27	27
		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	29	29	29	29
		27-45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	C	0-7	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	37	27	27	33	27	27	29
		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	40	29	29	35	29	29	31
		27-45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	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	30	30	30	27	30	30	36	30	30	31	30	29	28	30	39	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	29	33	33	39	32	32	34	31	31	30	30	41	26
		27-45	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	31	31
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	24
		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	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	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	37	24	24	33	24	24	29
		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	43	43	43	43	43	43	43	43	43	40	43	43	35	43	43	31
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	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	36	27	27	31	27	27	28	27	39	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	39	29	29	34	29	29	30	28	41	26
		27-45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45

* 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	SM	PRO SERIES	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)																																						
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			Roof Wind Zone																																						
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	73	73	73	73	73	63	73	73	53	73	73	45	73	71	39	73	63	35	73	56	32	73	45	27	72	37	23	61	32	20	53	28	17	46	24	23	40	22	20
		7-27	73	73	68	73	73	60	73	73	53	73	73	47	73	72	42	73	64	38	73	58	34	73	47	29	73	39	25	69	33	21	59	29	19	51	26	16	45	23	22
		27-45	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	65	65	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	73	73	43	73	66	37	73	58	33	73	51	29	73	45	27	73	40	24	69	36	22	58	30	19	49	26	16	42	22	21	36	19	18	32	17	~~16~~	28	23	~~14~~
		7-27	73	73	45	73	68	40	73	60	35	73	53	32	73	47	29	73	42	26	73	38	24	65	32	20	55	27	17	47	23	23	40	20	20	35	18	17	31	24	~~16~~
		27-45	68	68	68	68	68	68	67	67	67	61	61	61	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	73	61	34	73	53	31	73	46	27	73	40	25	70	36	22	63	33	20	57	30	19	48	25	24	40	21	20	35	19	18	30	24	~~15~~	26	22	~~14~~	23	19	~~12~~
		7-27	73	63	37	73	55	33	73	48	29	73	43	27	73	38	24	71	34	22	64	31	20	53	27	17	45	23	22	39	20	19	33	17	17	29	23	~~15~~	26	20	~~13~~
		27-45	68	68	68	63	63	63	58	58	58	53	53	53	48	48	48	45	45	45	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
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		7-27	52	52	52	52	52	52	52	52	52	52	52	47	52	52	42	52	52	38	52	52	34	52	47	29	52	39	25	52	33	21	49	29	19	46	26	16	43	23	22
		27-45	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	52	52	43	52	52	37	52	52	33	52	51	29	52	45	27	52	40	24	52	36	22	52	30	19	49	26	16	42	22	21	36	19	18	32	17	~~16~~	28	23	~~14~~
		7-27	52	52	45	52	52	40	52	52	35	52	52	32	52	47	29	52	42	26	52	38	24	51	32	20	47	27	17	44	23	23	40	20	20	35	18	17	31	24	~~16~~
		27-45	58	58	58	58	58	58	58	58	58	58	58	58	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	52	52	34	52	52	31	52	46	27	52	40	25	52	36	22	52	33	20	52	30	19	48	25	24	40	21	20	35	19	18	30	24	~~15~~	26	22	~~14~~	23	19	~~12~~
		7-27	52	52	37	52	52	33	52	48	29	52	43	27	52	38	24	52	34	22	51	31	20	47	27	17	43	23	22	39	20	19	33	17	17	29	23	~~15~~	26	20	~~13~~
		27-45	60	60	60	60	60	60	58	58	58	53	53	53	48	48	48	45	45	45	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
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		7-27	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	36	24	35	32	20	33	27	17	32	23	23	30	20	20	29	18	17	27	24	~~16~~
		27-45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	40	40	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
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	C	0-7	35	35	35	35	35	35	35	35	33	35	35	29	35	35	27	35	35	24	35	35	22	35	30	19	35	26	16	35	22	21	35	19	18	32	17	~~16~~	28	23	~~14~~
		7-27	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	36	24	35	32	20	33	27	17	32	23	23	30	20	20	29	18	17	27	24	~~16~~
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		27-45	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	37	37	33	33	33	30	30	30	27	27	27	24	24	24	21	21	21	19	19	19
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		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	29	29	27	27	27	25	25	25	23	23	23	21	21	21
	D	0-7	31	31	31	31	31	31	31	31	27	31	31	25	31	31	22	31	31	20	31	30	19	31	25	24	31	21	20	31	19	18	30	24	~~15~~	26	22	~~14~~	23	19	~~12~~
		7-27	33	33	33	33	33	33	33	33	29	33	33	27	33	33	24	33	33	22	32	31	20	30	27	17	29	23	22	27	20	19	26	17	17	24	23	~~15~~	23	20	~~13~~
		27-45	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	30	30	28	28	28	25	25	25	23	23	23	21	21	21	19	19	19
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		27-45	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	25	25
	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	22	21	24	19	18	24	17	~~16~~	23	23	~~14~~
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	20	25	25	17	24	23	23	23	20	20	22	18	17	21	24	~~16~~
		27-45	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	23	23	23	22	22	22	20	20	20
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	26	19	26	25	24	26	21	20	26	19	18	25	24	~~15~~	25	22	~~14~~	23	19	~~12~~
		7-27	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	27	20	26	26	17	25	23	22	24	20	19	23	17	17	22	23	~~15~~	21	20	~~13~~
		27-45	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	26	26	24	24	24	22	22	22	20	20	20	19	19	19

* 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	SM	PRO SERIES	Solarhooks ATI
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
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		7-27	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	21	22	22	19	21	21	16	21	21	22
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
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		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	20	22	22	17	21	21	23	20	20	20	20	18	17	19	24	~~16~~
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		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	19	19	19	19	19	19	16	19	19	22
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	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	15	15	15	21	15	15	18	15	15	~~16~~	15	23	~~14~~
		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	26	27	27	23	27	27	20	27	27	17	27	24	~~16~~
		27-45	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	25
	D	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	24	17	17	20	17	17	18	17	24	~~15~~	17	22	~~14~~	17	19	~~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	17	18	18	22	18	18	19	17	17	~~17~~	16	23	~~15~~	16	20	~~13~~
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	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	20	13	13	20
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	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	20	13	13	18	13	13	~~16~~	13	20	~~14~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	24	24	17	24	22	~~16~~
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	D	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	23	15	15	20	15	15	18	15	23	~~15~~	15	22	~~14~~	15	19	~~12~~
		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	22	26	26	19	26	26	17	26	23	~~15~~	26	20	~~13~~
		27-45	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	23	23	23
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	18	12	12	18
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	18	12	12	~~16~~	12	18	~~14~~
		7-27	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	20	21	21	17	21	20	~~16~~
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	20	13	13	20	13	13	18	13	20	~~15~~	13	20	~~14~~	13	19	~~12~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17	24	21	~~15~~	24	20	~~13~~
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	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	22.78 sq.ft	LANDSCAPE	CROSS-SLOPE	SM	PRO SERIES	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	1	2	3
0	B	0-7	141	141	141	141	141	141	141	141	141	141	141	141	141	141	97	141	141	74	141	138	63	141	100	53	141	77	45	125	62	39	107	54	34	93	48	30	81	43	40
		7-27	134	134	134	134	134	131	134	134	113	134	134	98	134	134	86	134	134	76	134	132	68	134	102	57	134	81	49	134	66	42	121	58	37	105	51	33	91	45	44
		27-45	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	113	113	113	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	141	141	139	141	141	83	141	140	65	141	120	58	141	100	53	141	85	48	140	73	44	118	59	37	98	51	32	83	44	42	72	38	36	62	34	32	55	45	29
		7-27	134	134	94	134	134	81	134	134	71	134	117	63	134	101	57	134	88	52	134	78	47	134	62	40	111	53	34	94	46	45	81	40	39	70	36	35	61	32	31
		27-45	124	124	124	124	124	124	124	124	124	122	122	122	112	112	112	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	141	141	71	141	128	60	141	104	54	141	87	49	140	74	44	129	64	40	117	59	37	96	50	31	80	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	134	134	75	134	124	65	134	105	58	134	90	52	134	78	48	134	69	43	132	62	40	109	52	34	91	45	43	77	39	38	66	34	33	58	45	29	52	40	26
		27-45	124	124	124	124	124	124	114	114	114	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
10	B	0-7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	100	100	74	100	100	63	100	100	53	100	77	45	100	62	39	100	54	34	93	48	30	81	43	40
		7-27	101	101	101	101	101	101	101	101	101	101	101	98	101	101	86	101	101	76	101	101	68	101	101	57	101	81	49	101	66	42	99	58	37	93	51	33	87	45	44
		27-45	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	100	100	100	100	100	83	100	100	65	100	100	58	100	100	53	100	85	48	100	73	44	100	59	37	98	51	32	83	44	42	72	38	36	62	34	32	55	45	29
		7-27	101	101	94	101	101	81	101	101	71	101	101	63	101	101	57	101	88	52	101	78	47	101	62	40	96	53	34	88	46	45	81	40	39	70	36	35	61	32	31
		27-45	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	100	100	71	100	100	60	100	100	54	100	87	49	100	74	44	100	64	40	100	59	37	96	50	31	80	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	101	101	75	101	101	65	101	101	58	101	90	52	101	78	48	101	69	43	101	62	40	95	52	34	87	45	43	77	39	38	66	34	33	58	45	29	52	40	26
		27-45	111	111	111	111	111	111	111	111	111	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
20	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	53	70	70	45	70	62	39	70	54	34	70	48	30	70	43	40
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	44
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	82	82	75	75	75	67	67	67	60	60	60
	C	0-7	70	70	70	70	70	70	70	70	65	70	70	58	70	70	53	70	70	48	70	70	44	70	59	37	70	51	32	70	44	42	70	38	36	62	34	32	55	45	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	45	59	40	39	56	36	35	53	32	31
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	79	79	79	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	43	58	39	38	55	34	33	52	45	29	49	40	26
		27-45	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	85	85	85	80	80	80	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
30	B	0-7	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	53	68	68	45	68	62	39	68	54	34	68	48	30	68	43	40
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	44
		27-45	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	65	68	68	58	68	68	53	68	68	48	68	68	44	68	59	37	68	51	32	68	44	42	68	38	36	62	34	32	55	45	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	45	59	40	39	56	36	35	53	32	31
		27-45	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	63	63	58	58	58	53	53	53	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	40	68	37	35	59	32	31	52	43	27	46	38	24
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	43	58	39	38	55	34	33	52	45	29	49	40	26
		27-45	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	72	72	65	65	65	59	59	59	53	53	53	47	47	47	42	42	42	38	38	38
40	B	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	45	57	57	39	57	54	34	57	48	30	57	43	40
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	59	59	42	57	57	37	55	51	33	53	45	44
		27-45	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	56	56	52	52	52
	C	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	57	44	57	57	37	57	51	32	57	44	42	56	38	36	55	34	32	53	45	29
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	47	58	58	40	56	53	34	53	46	45	51	40	39	49	36	35	47	32	31
		27-45	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	53	53	53	49	49	49	46	46	46	42	42	42
	D	0-7	61	61	61	61	61	60	61	61	54	61	61	49	61	61	44	61	61	40	61	59	37	61	50	31	61	42	40	60	37	35	58	32	31	52	43	27	46	38	24
		7-27	64	64	64	64	64	64	64	64	58	64	64	52	64	64	48	63	63	43	62	62	40	59	52	34	56	45	43	53	39	38	51	34	33	48	45	29	45	40	26
		27-45	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	59	59	54	54	54	50	50	50	45	45	45	42	42	42	38	38	38
50	B	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	34	46	46	30	46	43	40
		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	50	50	50	49	50	50	42	49	49	37	48	48	33	46	45	44
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	48	48
	C	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37	46	46	32	46	44	42	46	38	36	46	34	32	46	45	29
		7-27	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	40	48	48	34	47	46	45	45	40	39	43	36	35	41	32	31
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	46	46	46	42	42	42	40	40	40
	D	0-7	51	51	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	40	51	51	37	51	50	31	51	42	40	51	37	35	50	32	31	48	43	27	46	38	24
		7-27	55	55	55	55	55	55	55	55	55	55	55	52	55	55	48	55	55	43	54	54	40	51	51	34	49	45	43	47	39	38	45	34	33	43	45	29	41	40	26
		27-45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	46	46	46	43	43	43	39	39	39	36	36	36

* 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	SM	PRO SERIES	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	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	39	39	39	39	39	39	34	39	39	30	39	39	40
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	33	41	41	44
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
	C	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	42	39	38	36	39	34	32	39	45	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	41	41	45	40	40	39	38	36	35	37	32	31
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	40	40	37	37	37
	D	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	37	43	43	31	43	42	40	43	37	35	43	32	31	43	43	27	42	38	24
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	40	46	46	34	44	44	43	42	39	38	40	34	33	39	45	29	37	40	26
		27-45	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	43	43	40	40	40	37	37	37	35	35	35
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		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	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	30	30	30	42	30	30	36	30	30	32	30	45	29
		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	52	52	52	52	52	52	45	52	52	39	52	52	35	52	48	31
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	D	0-7	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	40	33	33	35	33	32	31	33	43	27	33	38	24
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		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	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	40	26	26	36	26	26	32	26	40	29
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	39	46	46	35	46	46	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	D	0-7	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	40	29	29	35	29	29	31	29	43	27	29	38	24
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	43	51	51	38	51	51	33	51	45	29	51	40	26
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	48	48	48	45	45	45
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	36
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	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	36	24	24	36	24	24	32	24	36	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	39	42	42	35	42	42	31
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	D	0-7	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	40	26	26	35	26	26	31	26	40	27	26	38	24
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		27-45	44	44	44	44	44	44	44	44	44	44	44	44	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	43	43

* 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	SM	UAF	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	1	2	3
0	B	0-7	87	87	87	87	87	75	87	87	63	87	87	54	87	85	47	87	75	42	87	67	38	87	54	32	86	44	27	73	38	24	63	33	21	55	29	18	48	26	16
		7-27	88	88	82	88	88	72	88	88	63	88	88	56	88	86	50	88	77	45	88	69	41	88	57	35	88	47	30	82	40	26	71	35	22	62	31	20	54	27	17
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	84	84	84	78	78	78	68	68	68	59	59	59	52	52	52	46	46	46	41	41	41	37	37	37
	C	0-7	87	87	52	87	80	44	87	69	39	87	60	35	87	53	32	87	48	29	83	43	27	69	36	23	58	31	19	50	27	17	43	23	15	38	20	19	34	18	17
		7-27	88	88	54	88	82	48	88	72	42	88	63	38	88	56	34	88	50	31	88	45	29	77	38	24	65	32	21	56	28	18	48	25	16	42	22	21	37	19	19
		27-45	90	90	90	87	87	87	80	80	80	73	73	73	67	67	67	62	62	62	58	58	58	50	50	50	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	87	73	41	87	63	37	87	55	33	87	48	30	84	43	27	75	39	24	68	36	22	57	30	19	48	26	16	41	22	14	36	19	19	32	17	16	28	15	14
		7-27	88	76	44	88	66	39	88	58	35	88	51	32	88	46	29	85	41	26	77	38	24	64	32	20	54	27	17	46	24	15	40	21	20	35	18	18	31	16	16
		27-45	83	83	83	75	75	75	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
10	B	0-7	62	62	62	62	62	62	62	62	62	62	62	54	62	62	47	62	62	42	62	62	38	62	54	32	62	44	27	62	38	24	62	33	21	55	29	18	48	26	16
		7-27	62	62	62	62	62	62	62	62	62	62	62	56	62	62	50	62	62	45	62	62	41	62	57	35	62	47	30	62	40	26	59	35	22	55	31	20	52	27	17
		27-45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	83	83	83	78	78	78	68	68	68	59	59	59	52	52	52	46	46	46	41	41	41	37	37	37
	C	0-7	62	62	52	62	62	44	62	62	39	62	60	35	62	53	32	62	48	29	62	43	27	62	36	23	58	31	19	50	27	17	43	23	15	38	20	19	34	18	17
		7-27	62	62	54	62	62	48	62	62	42	62	62	38	62	56	34	62	50	31	62	45	29	61	38	24	56	32	21	52	28	18	48	25	16	42	22	21	37	19	19
		27-45	87	87	87	85	85	85	80	80	80	73	73	73	67	67	67	62	62	62	58	58	58	50	50	50	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	62	62	41	62	62	37	62	55	33	62	48	30	62	43	27	62	39	24	62	36	22	57	30	19	48	26	16	41	22	14	36	19	19	32	17	16	28	15	14
		7-27	62	62	44	62	62	39	62	58	35	62	51	32	62	46	29	62	41	26	61	38	24	56	32	20	52	27	17	46	24	15	40	21	20	35	18	18	31	16	16
		27-45	83	83	83	75	75	75	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
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		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	43	40	26	41	35	22	39	31	20	38	27	17
		27-45	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	59	59	54	54	54	50	50	50	45	45	45	41	41	41	37	37	37
	C	0-7	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	43	43	29	43	43	27	43	36	23	43	31	19	43	27	17	43	23	15	38	20	19	34	18	17
		7-27	43	43	43	43	43	43	43	43	42	43	43	38	43	43	34	43	43	31	43	43	29	42	38	24	40	32	21	38	28	18	36	25	16	34	22	21	32	19	19
		27-45	65	65	65	65	65	65	65	65	65	62	62	62	59	59	59	56	56	56	53	53	53	48	48	48	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	43	43	41	43	43	37	43	43	33	43	43	30	43	43	27	43	39	24	43	36	22	43	30	19	43	26	16	41	22	14	36	19	19	32	17	16	28	15	14
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		27-45	69	69	69	66	66	66	62	62	62	58	58	58	55	55	55	52	52	52	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
30	B	0-7	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	32	42	42	27	42	38	24	42	33	21	42	29	18	42	26	16
		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	43	40	26	41	35	22	39	31	20	38	27	17
		27-45	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	44	44	41	41	41	38	38	38	35	35	35
	C	0-7	42	42	42	42	42	42	42	42	39	42	42	35	42	42	32	42	42	29	42	42	27	42	36	23	42	31	19	42	27	17	42	23	15	38	20	19	34	18	17
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		27-45	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	42	42	39	39	39	36	36	36	33	33	33	30	30	30	27	27	27
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40	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	32	35	35	27	35	35	24	35	33	21	35	29	18	35	26	16
		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	36	36	26	35	35	22	34	31	20	32	27	17
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	C	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	35	27	35	35	23	35	31	19	35	27	17	34	23	15	33	20	19	32	18	17
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		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	35	33	33	33	30	30	30	28	28	28	26	26	26
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		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30
	C	0-7	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	23	28	28	19	28	27	17	28	23	15	28	20	19	28	18	17
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	24	30	30	21	28	28	18	27	25	16	26	22	21	25	19	19
		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	28	28	28	26	26	26	24	24	24
	D	0-7	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	31	24	31	31	22	31	30	19	31	26	16	31	22	14	30	19	19	30	17	16	28	15	14
		7-27	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	26	33	33	24	31	31	20	30	27	17	29	24	15	27	21	20	26	18	18	25	16	16
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	31	31	31	28	28	28	26	26	26	24	24	24	22	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	SM	UAF	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	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	24	24	24	21	24	24	18	24	24	16
		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	22	26	26	20	25	25	17
		27-45	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	26
	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	23	24	24	19	24	24	17	24	23	15	24	20	19	24	18	17
		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	24	26	26	21	25	25	18	24	24	16	23	22	21	23	19	19
		27-45	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	24	24	24	23	23	23
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	19	26	26	16	26	22	14	26	19	19	26	17	16	25	15	14
		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	28	20	27	27	17	26	24	15	25	21	20	24	18	18	23	16	16
		27-45	29	29	29	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	26	26	25	25	25	23	23	23	21	21	21
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	21	21	21	21	21	21	18	21	21	16
		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	22	22	22	20	22	22	17
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	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	21	21	21	19	21	21	17	21	21	15	21	20	19	21	18	17
		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	21	20	19	19
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	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	23	23	23	22	23	23	19	23	23	16	23	22	14	23	19	19	23	17	16	23	15	14
		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	24	24	17	23	23	15	22	21	20	21	18	18	21	16	16
		27-45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	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	18	18	18	16
		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	20	20	20	20	20	20	17
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	18	18	18	17	18	18	15	18	18	19	18	18	17
		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	18	20	20	16	19	19	21	19	19	19
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	D	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	19	20	20	16	20	20	14	20	19	19	20	17	16	20	15	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	20	22	22	17	21	21	15	20	20	20	20	18	18	19	16	16
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	20	20	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	16
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	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	16	16	16	15	16	16	19	16	16	17
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	19
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	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	18	18	18	16	18	18	14	18	18	19	18	17	16	18	15	14
		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	17	19	19	15	19	19	20	18	18	18	18	16	16
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	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	16
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	14	14	14	19	14	14	17
		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	21	16	16	19
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	14	16	16	19	16	16	16	16	15	14
		7-27	17	17	17	17	17	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	20	17	17	18	16	16	16
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18

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Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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			Roof Wind Zone																																						
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	144	144	144	144	144	144	144	144	144	144	144	142	144	144	106	144	144	78	144	139	64	144	104	54	142	80	46	129	64	40	110	56	35	95	49	31	83	43	27
		7-27	145	145	143	145	145	135	145	145	116	145	145	101	145	145	89	145	142	79	145	136	70	145	105	58	145	84	50	140	68	43	124	59	38	107	52	33	93	46	30
		27-45	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	144	144	144	133	133	133	115	115	115	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	144	144	140	144	144	89	144	141	67	144	125	60	144	104	54	144	88	49	141	76	45	121	60	38	101	52	33	85	45	28	73	39	25	64	34	33	57	31	29
		7-27	145	145	97	145	145	83	145	139	73	145	121	64	145	104	58	145	91	53	145	80	48	137	64	41	114	55	35	97	47	30	83	41	27	72	36	23	63	32	31
		27-45	149	149	149	149	149	149	136	136	136	125	125	125	115	115	115	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	144	144	75	144	134	62	144	108	55	144	90	50	141	76	45	133	66	41	119	60	38	98	51	32	82	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	145	142	77	145	128	66	145	108	59	145	93	54	145	81	49	142	71	44	136	63	41	111	54	34	93	46	29	79	40	26	68	35	34	59	31	30	53	27	26
		27-45	142	142	142	129	129	129	117	117	117	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
10	B	0-7	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	78	102	102	64	102	102	54	102	80	46	102	64	40	102	56	35	95	49	31	83	43	27
		7-27	103	103	103	103	103	103	103	103	103	103	103	101	103	103	89	103	103	79	103	103	70	103	103	58	103	84	50	103	68	43	102	59	38	96	52	33	89	46	30
		27-45	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	141	141	141	133	133	133	115	115	115	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	102	102	102	102	102	89	102	102	67	102	102	60	102	102	54	102	88	49	102	76	45	102	60	38	101	52	33	85	45	28	73	39	25	64	34	33	57	31	29
		7-27	103	103	97	103	103	83	103	103	73	103	103	64	103	103	58	103	91	53	103	80	48	103	64	41	98	55	35	91	47	30	83	41	27	72	36	23	63	32	31
		27-45	144	144	144	144	144	144	135	135	135	125	125	125	115	115	115	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	102	102	75	102	102	62	102	102	55	102	90	50	102	76	45	102	66	41	102	60	38	98	51	32	82	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	103	103	77	103	103	66	103	103	59	103	93	54	103	81	49	103	71	44	103	63	41	97	54	34	89	46	29	79	40	26	68	35	34	59	31	30	53	27	26
		27-45	142	142	142	129	129	129	117	117	117	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
20	B	0-7	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	54	72	72	46	72	64	40	72	56	35	72	49	31	72	43	27
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	100	100	100	91	91	91	84	84	84	76	76	76	69	69	69	62	62	62
	C	0-7	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	49	72	72	45	72	60	38	72	52	33	72	45	28	72	39	25	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	27	57	36	23	54	32	31
		27-45	106	106	106	106	106	106	106	106	106	105	105	105	100	100	100	95	95	95	90	90	90	81	81	81	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	26	56	35	34	53	31	30	50	27	26
		27-45	113	113	113	111	111	111	105	105	105	98	98	98	93	93	93	87	87	87	82	82	82	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
30	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	54	70	70	46	70	64	40	70	56	35	70	49	31	70	43	27
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	73	73	73	68	68	68	63	63	63	58	58	58
	C	0-7	70	70	70	70	70	70	70	70	67	70	70	60	70	70	54	70	70	49	70	70	45	70	60	38	70	52	33	70	45	28	70	39	25	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	27	57	36	23	54	32	31
		27-45	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	71	71	71	65	65	65	60	60	60	55	55	55	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	26	56	35	34	53	31	30	50	27	26
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	82	82	82	77	77	77	73	73	73	66	66	66	60	60	60	54	54	54	48	48	48	43	43	43	38	38	38
40	B	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	46	58	58	40	58	56	35	58	49	31	58	43	27
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	50	60	60	43	58	58	38	56	52	33	54	46	30
		27-45	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	61	61	57	57	57	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	49	58	58	45	58	58	38	58	52	33	58	45	28	58	39	25	56	34	33	54	31	29
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	48	59	59	41	57	55	35	55	47	30	52	41	27	50	36	23	48	32	31
		27-45	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	59	59	54	54	54	50	50	50	47	47	47	43	43	43
	D	0-7	62	62	62	62	62	62	62	62	55	62	62	50	62	62	45	62	62	41	62	60	38	62	51	32	62	43	27	61	38	24	59	33	31	53	29	28	47	26	25
		7-27	66	66	66	66	66	66	66	66	59	66	66	54	66	66	49	65	65	44	63	63	41	60	54	34	57	46	29	55	40	26	52	35	34	49	31	30	47	27	26
		27-45	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	66	66	61	61	61	55	55	55	51	51	51	47	47	47	43	43	43	38	38	38
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	47	47	47	46	47	47	40	47	47	35	47	47	31	47	43	27
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	43	50	50	38	49	49	33	47	46	30
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50
	C	0-7	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	47	47	33	47	45	28	47	39	25	47	34	33	47	31	29
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	49	49	35	48	47	30	46	41	27	44	36	23	42	32	31
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	47	47	47	43	43	43	40	40	40
	D	0-7	52	52	52	52	52	52	52	52	52	52	52	50	52	52	45	52	52	41	52	52	38	52	51	32	52	43	27	52	38	24	51	33	31	49	29	28	47	26	25
		7-27	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	56	56	44	55	55	41	53	53	34	50	46	29	48	40	26	46	35	34	44	31	30	42	27	26
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	51	51	47	47	47	44	44	44	40	40	40	37	37	37

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~~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	SM	UAF	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	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	40	40	40	35	40	40	31	40	40	27
		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	43	43	43	43	43	43	43	43	43	38	43	43	33	42	42	30
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	28	40	39	25	40	34	33	40	31	29
		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	41	43	43	35	42	42	30	41	41	27	39	36	23	38	32	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	41	41	38	38	38
	D	0-7	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	38	44	44	32	44	43	27	44	38	24	44	33	31	44	29	28	42	26	25
		7-27	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	48	48	41	47	47	34	45	45	29	43	40	26	41	35	34	40	31	30	38	27	26
		27-45	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	44	44	41	41	41	38	38	38	35	35	35
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	35	35	35	31	35	35	27
		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	37	37	37	37	37	37	37	37	37	33	37	37	30
		27-45	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	C	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	28	35	35	25	35	34	33	35	31	29
		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	35	37	37	30	37	37	27	36	36	23	34	32	31
		27-45	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	36	36
	D	0-7	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	27	38	38	24	38	33	31	38	29	28	38	26	25
		7-27	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	34	40	40	29	39	39	26	38	35	34	36	31	30	35	27	26
		27-45	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	39	39	36	36	36	34	34	34
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	30	30	30	27
		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	33	33	33	30
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
	C	0-7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	25	30	30	33	30	30	29
		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	30	33	33	27	32	32	23	31	31	31
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	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	34	34	34	32	34	34	27	34	34	24	34	33	31	34	29	28	34	26	25
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	29	36	36	26	34	34	34	33	31	30	32	27	26
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	34	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	27	27	27	27
		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	29	29	29	29
		27-45	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	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	27	27	27	25	27	27	33	27	27	29
		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	27	29	29	23	29	29	31
		27-45	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	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	30	30	30	27	30	30	24	30	30	31	30	29	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	29	33	33	26	32	32	34	31	31	30	30	27	26
		27-45	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	31	31
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	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	27
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	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	24	24	24	33	24	24	29
		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	23	27	27	31
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	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	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	26
		27-45	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

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0	B	0-7	73	73	73	73	73	63	73	73	53	73	73	45	73	71	39	73	63	35	73	56	32	73	45	27	72	37	23	61	32	20	53	28	17	46	24	15	40	22	20
		7-27	73	73	68	73	73	60	73	73	53	73	73	47	73	72	42	73	64	38	73	58	34	73	47	29	73	39	25	69	33	21	59	29	19	51	26	16	45	23	15
		27-45	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	70	70	70	65	65	65	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	73	73	43	73	66	37	73	58	33	73	51	29	73	45	27	73	40	24	69	36	22	58	30	19	49	26	16	42	22	14	36	19	18	32	17	16	28	15	14
		7-27	73	73	45	73	68	40	73	60	35	73	53	32	73	47	29	73	42	26	73	38	24	65	32	20	55	27	17	47	23	15	40	20	20	35	18	17	31	16	16
		27-45	75	75	75	73	73	73	67	67	67	61	61	61	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	73	61	34	73	53	31	73	46	27	73	40	25	70	36	22	63	33	20	57	30	19	48	25	16	40	21	20	35	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
		7-27	73	63	37	73	55	33	73	48	29	73	43	27	73	38	24	71	34	22	64	31	20	53	27	17	45	23	14	39	20	19	33	17	17	29	15	15	26	20	~~13~~
		27-45	69	69	69	63	63	63	58	58	58	53	53	53	48	48	48	45	45	45	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
10	B	0-7	52	52	52	52	52	52	52	52	52	52	52	45	52	52	39	52	52	35	52	52	32	52	45	27	52	37	23	52	32	20	52	28	17	46	24	15	40	22	20
		7-27	52	52	52	52	52	52	52	52	52	52	52	47	52	52	42	52	52	38	52	52	34	52	47	29	52	39	25	52	33	21	49	29	19	46	26	16	43	23	15
		27-45	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	69	69	69	65	65	65	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	52	52	43	52	52	37	52	52	33	52	51	29	52	45	27	52	40	24	52	36	22	52	30	19	49	26	16	42	22	14	36	19	18	32	17	16	28	15	14
		7-27	52	52	45	52	52	40	52	52	35	52	52	32	52	47	29	52	42	26	52	38	24	51	32	20	47	27	17	44	23	15	40	20	20	35	18	17	31	16	16
		27-45	73	73	73	71	71	71	67	67	67	61	61	61	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	52	52	34	52	52	31	52	46	27	52	40	25	52	36	22	52	33	20	52	30	19	48	25	16	40	21	20	35	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
		7-27	52	52	37	52	52	33	52	48	29	52	43	27	52	38	24	52	34	22	51	31	20	47	27	17	43	23	14	39	20	19	33	17	17	29	15	15	26	20	~~13~~
		27-45	69	69	69	63	63	63	58	58	58	53	53	53	48	48	48	45	45	45	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
20	B	0-7	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	36	27	36	36	23	36	32	20	36	28	17	36	24	15	36	22	20
		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	36	33	21	34	29	19	33	26	16	31	23	15
		27-45	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	50	50	45	45	45	42	42	42	38	38	38	34	34	34	31	31	31
	C	0-7	36	36	36	36	36	36	36	36	33	36	36	29	36	36	27	36	36	24	36	36	22	36	30	19	36	26	16	36	22	14	36	19	18	32	17	16	28	15	14
		7-27	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	36	24	35	32	20	33	27	17	32	23	15	30	20	20	29	18	17	27	16	16
		27-45	54	54	54	54	54	54	54	54	54	52	52	52	50	50	50	47	47	47	45	45	45	40	40	40	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	36	36	34	36	36	31	36	36	27	36	36	25	36	36	22	36	33	20	36	30	19	36	25	16	36	21	20	35	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
		7-27	36	36	36	36	36	33	36	36	29	36	36	27	36	36	24	36	34	22	35	31	20	33	27	17	31	23	14	30	20	19	28	17	17	26	15	15	25	20	~~13~~
		27-45	58	58	58	55	55	55	52	52	52	49	49	49	46	46	46	43	43	43	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
30	B	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	35	23	35	32	20	35	28	17	35	24	15	35	22	20
		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	36	33	21	34	29	19	33	26	16	31	23	15
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	37	37	34	34	34	31	31	31	29	29	29
	C	0-7	35	35	35	35	35	35	35	35	33	35	35	29	35	35	27	35	35	24	35	35	22	35	30	19	35	26	16	35	22	14	35	19	18	32	17	16	28	15	14
		7-27	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	36	24	35	32	20	33	27	17	32	23	15	30	20	20	29	18	17	27	16	16
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	36	36	36	32	32	32	30	30	30	27	27	27	25	25	25	22	22	22
	D	0-7	36	36	34	36	36	31	36	36	27	36	36	25	36	36	22	36	33	20	36	30	19	36	25	16	36	21	20	35	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
		7-27	36	36	36	36	36	33	36	36	29	36	36	27	36	36	24	36	34	22	35	31	20	33	27	17	31	23	14	30	20	19	28	17	17	26	15	15	25	20	~~13~~
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	41	41	41	39	39	39	37	37	37	33	33	33	30	30	30	27	27	27	24	24	24	21	21	21	19	19	19
40	B	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	20	29	28	17	29	24	15	29	22	20
		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	29	31	31	25	30	30	21	29	29	19	28	26	16	27	23	15
		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	29	29	27	27	27
	C	0-7	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	24	29	29	22	29	29	19	29	26	16	29	22	14	29	19	18	28	17	16	27	15	14
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	24	30	30	20	29	27	17	27	23	15	26	20	20	25	18	17	24	16	16
		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	29	29	27	27	27	25	25	25	23	23	23	21	21	21
	D	0-7	31	31	31	31	31	31	31	31	27	31	31	25	31	31	22	31	31	20	31	30	19	31	25	16	31	21	20	31	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
		7-27	33	33	33	33	33	33	33	33	29	33	33	27	33	33	24	33	33	22	32	31	20	30	27	17	29	23	14	27	20	19	26	17	17	24	15	15	23	20	~~13~~
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	30	30	30	28	28	28	25	25	25	23	23	23	21	21	21	19	19	19
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	24	24	24	23	24	24	20	24	24	17	24	24	15	24	22	20
		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	25	26	26	21	25	25	19	24	24	16	24	23	15
		27-45	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	25	25
	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	22	14	24	19	18	24	17	16	23	15	14
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	20	25	25	17	24	23	15	23	20	20	22	18	17	21	16	16
		27-45	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25	23	23	23	22	22	22	20	20	20
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	26	19	26	25	16	26	21	20	26	19	18	25	16	15	25	14	~~14~~	23	19	~~12~~
		7-27	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	27	20	26	26	17	25	23	14	24	20	19	23	17	17	22	15	15	21	20	~~13~~
		27-45	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	26	26	24	24	24	22	22	22	20	20	20	19	19	19

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~~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	SM	UAF	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	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	20	20	20	17	20	20	15	20	20	20
		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	21	22	22	19	21	21	16	21	21	15
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	C	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	19	20	20	16	20	20	14	20	19	18	20	17	16	20	15	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	20	22	22	17	21	21	15	20	20	20	20	18	17	19	16	16
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	20	20	19	19	19
	D	0-7	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	19	22	22	16	22	21	20	22	19	18	22	16	15	22	14	~~14~~	21	19	~~12~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	23	23	17	22	22	14	21	20	19	21	17	17	20	15	15	19	20	~~13~~
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	20	20	20	19	19	19	18	18	18
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	17	17	17	15	17	17	20
		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	19	19	19	19	19	19	16	19	19	15
		27-45	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	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	17	17	17	16	17	17	14	17	17	18	17	17	16	17	15	14
		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	17	19	19	15	18	18	20	18	18	17	17	16	16
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	D	0-7	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	20	19	19	18	19	16	15	19	14	~~14~~	19	19	~~12~~
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	20	20	14	19	19	19	19	17	17	18	15	15	17	20	~~13~~
		27-45	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	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	15	15	15	20
		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	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
	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	15	15	15	14	15	15	18	15	15	16	15	15	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	15	16	16	20	16	16	17	16	16	16
		27-45	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	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	17	17	17	16	17	17	20	17	17	18	17	16	15	17	14	~~14~~	17	19	~~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	17	18	18	14	18	18	19	17	17	17	16	15	15	16	20	~~13~~
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	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	20
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	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	13	13	13	18	13	13	16	13	13	14
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	24	16
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	D	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	20	15	15	18	15	15	15	15	14	~~14~~	15	19	~~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	14	16	16	19	16	16	17	15	15	15	15	20	~~13~~
		27-45	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	24	24
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	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	12	12	12	18	12	12	16	12	12	14
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	16
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	20	13	13	18	13	13	15	13	13	~~14~~	13	19	~~12~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17	24	23	15	24	20	~~13~~
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22

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SPAN TABLES

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			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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	141	141	141	141	141	141	141	141	141	141	141	141	141	141	97	141	141	74	141	138	63	141	100	53	141	77	45	125	62	39	107	54	34	93	48	30	81	43	27
		7-27	141	141	141	141	141	131	141	141	113	141	141	98	141	141	86	141	141	76	141	132	68	141	102	57	141	81	49	139	66	42	121	58	37	105	51	33	91	45	29
		27-45	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	140	140	130	130	130	113	113	113	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	141	141	139	141	141	83	141	140	65	141	120	58	141	100	53	141	85	48	140	73	44	118	59	37	98	51	32	83	44	28	72	38	36	62	34	32	55	30	29
		7-27	141	141	94	141	141	81	141	138	71	141	117	63	141	101	57	141	88	52	141	78	47	134	62	40	111	53	34	94	46	30	81	40	39	70	36	35	61	32	31
		27-45	146	146	146	146	146	146	133	133	133	122	122	122	112	112	112	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	141	141	71	141	128	60	141	104	54	141	87	49	140	74	44	129	64	40	117	59	37	96	50	31	80	42	27	68	37	35	59	32	31	52	28	27	46	38	~~24~~
		7-27	141	140	75	141	124	65	141	105	58	141	90	52	141	78	48	141	69	43	132	62	40	109	52	34	91	45	29	77	39	38	66	34	33	58	30	29	52	40	~~26~~
		27-45	138	138	138	126	126	126	114	114	114	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
10	B	0-7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	100	100	74	100	100	63	100	100	53	100	77	45	100	62	39	100	54	34	93	48	30	81	43	27
		7-27	101	101	101	101	101	101	101	101	101	101	101	98	101	101	86	101	101	76	101	101	68	101	101	57	101	81	49	101	66	42	99	58	37	93	51	33	87	45	29
		27-45	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	137	137	137	130	130	130	113	113	113	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	100	100	100	100	100	83	100	100	65	100	100	58	100	100	53	100	85	48	100	73	44	100	59	37	98	51	32	83	44	28	72	38	36	62	34	32	55	30	29
		7-27	101	101	94	101	101	81	101	101	71	101	101	63	101	101	57	101	88	52	101	78	47	101	62	40	96	53	34	88	46	30	81	40	39	70	36	35	61	32	31
		27-45	141	141	141	141	141	141	132	132	132	122	122	122	112	112	112	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	100	100	71	100	100	60	100	100	54	100	87	49	100	74	44	100	64	40	100	59	37	96	50	31	80	42	27	68	37	35	59	32	31	52	28	27	46	38	~~24~~
		7-27	101	101	75	101	101	65	101	101	58	101	90	52	101	78	48	101	69	43	101	62	40	95	52	34	87	45	29	77	39	38	66	34	33	58	30	29	52	40	~~26~~
		27-45	138	138	138	126	126	126	114	114	114	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
20	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	53	70	70	45	70	62	39	70	54	34	70	48	30	70	43	27
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	29
		27-45	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	98	98	98	89	89	89	82	82	82	75	75	75	67	67	67	60	60	60
	C	0-7	70	70	70	70	70	70	70	70	65	70	70	58	70	70	53	70	70	48	70	70	44	70	59	37	70	51	32	70	44	28	70	38	36	62	34	32	55	30	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	30	59	40	39	56	36	35	53	32	31
		27-45	104	104	104	104	104	104	104	104	104	103	103	103	97	97	97	92	92	92	88	88	88	79	79	79	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	27	68	37	35	59	32	31	52	28	27	46	38	~~24~~
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	29	58	39	38	55	34	33	52	30	29	49	40	~~26~~
		27-45	111	111	111	108	108	108	102	102	102	96	96	96	91	91	91	85	85	85	80	80	80	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
30	B	0-7	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	53	68	68	45	68	62	39	68	54	34	68	48	30	68	43	27
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	29
		27-45	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	72	72	72	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	65	68	68	58	68	68	53	68	68	48	68	68	44	68	59	37	68	51	32	68	44	28	68	38	36	62	34	32	55	30	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	30	59	40	39	56	36	35	53	32	31
		27-45	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	70	70	70	63	63	63	58	58	58	53	53	53	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	27	68	37	35	59	32	31	52	28	27	46	38	~~24~~
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	29	58	39	38	55	34	33	52	30	29	49	40	~~26~~
		27-45	83	83	83	83	83	83	83	83	83	83	83	83	80	80	80	76	76	76	72	72	72	65	65	65	59	59	59	53	53	53	47	47	47	42	42	42	38	38	38
40	B	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	45	57	57	39	57	54	34	57	48	30	57	43	27
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	59	59	42	57	57	37	55	51	33	53	45	29
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	56	56	56	52	52	52
	C	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	57	44	57	57	37	57	51	32	57	44	28	56	38	36	55	34	32	53	30	29
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	47	58	58	40	56	53	34	53	46	30	51	40	39	49	36	35	47	32	31
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	58	58	53	53	53	49	49	49	46	46	46	42	42	42
	D	0-7	61	61	61	61	61	60	61	61	54	61	61	49	61	61	44	61	61	40	61	59	37	61	50	31	61	42	27	60	37	35	58	32	31	52	28	27	46	38	~~24~~
		7-27	64	64	64	64	64	64	64	64	58	64	64	52	64	64	48	63	63	43	62	62	40	59	52	34	56	45	29	53	39	38	51	34	33	48	30	29	45	40	~~26~~
		27-45	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	65	65	59	59	59	54	54	54	50	50	50	45	45	45	42	42	42	38	38	38
50	B	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	34	46	46	30	46	43	27
		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	50	50	50	49	50	50	42	49	49	37	48	48	33	46	45	29
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	48	48
	C	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37	46	46	32	46	44	28	46	38	36	46	34	32	46	30	29
		7-27	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	40	48	48	34	47	46	30	45	40	39	43	36	35	41	32	31
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	46	46	46	42	42	42	40	40	40
	D	0-7	51	51	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	40	51	51	37	51	50	31	51	42	27	51	37	35	50	32	31	48	28	27	46	38	~~24~~
		7-27	55	55	55	55	55	55	55	55	55	55	55	52	55	55	48	55	55	43	54	54	40	51	51	34	49	45	29	47	39	38	45	34	33	43	30	29	41	40	~~26~~
		27-45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	46	46	46	43	43	43	39	39	39	36	36	36

* 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	SM	UAF	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	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	39	39	39	39	39	39	34	39	39	30	39	39	27
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	33	41	41	29
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
	C	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	28	39	38	36	39	34	32	39	30	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	41	41	30	40	40	39	38	36	35	37	32	31
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	40	40	37	37	37
	D	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	37	43	43	31	43	42	27	43	37	35	43	32	31	43	28	27	42	38	~~24~~
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	40	46	46	34	44	44	29	42	39	38	40	34	33	39	30	29	37	40	~~26~~
		27-45	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	43	43	40	40	40	37	37	37	35	35	35
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	34	34	34	30	34	34	27
		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	37	37	37	37	37	37	37	37	37	33	37	37	29
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
	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	34	34	34	32	34	34	28	34	34	36	34	34	32	34	30	29
		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	34	37	37	30	36	36	39	35	35	35	34	32	31
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	35
	D	0-7	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	27	37	37	35	37	32	31	37	28	27	37	38	~~24~~
		7-27	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	29	38	38	38	37	34	33	35	30	29	34	40	~~26~~
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	38	38	35	35	35	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	30	30	30	27
		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	32	32	32	29
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	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	30	30	30	28	30	30	36	30	30	32	30	30	29
		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	30	32	32	39	32	32	35	31	31	31
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	D	0-7	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	33	35	33	32	31	33	28	27	33	38	~~24~~
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	29	35	35	38	34	34	33	32	30	29	31	40	~~26~~
		27-45	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	34	34	31	31	31
90	B	0-7	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	26
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	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	36	26	26	32	26	26	29
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	35	46	46	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	D	0-7	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	35	29	29	31	29	28	27	29	38	~~24~~
		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	29	32	32	38	31	31	33	30	30	29	29	40	~~26~~
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	48	48	48	45	45	45
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	24
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	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	36	24	24	32	24	24	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	35	42	42	31
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	D	0-7	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	35	26	26	31	26	26	27	26	38	~~24~~
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	33	46	45	29	46	40	~~26~~
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	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	43	43

* 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	SM	UAF	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	1	2	3
0	B	0-7	87	87	87	87	87	75	87	87	63	87	87	54	87	85	47	87	75	42	87	67	38	87	54	32	86	44	27	73	38	24	63	33	21	55	29	18	48	26	16
		7-27	87	87	82	87	87	72	87	87	63	87	87	56	87	86	50	87	77	45	87	69	41	87	57	35	87	47	30	82	40	26	71	35	22	62	31	20	54	27	17
		27-45	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	78	78	78	68	68	68	59	59	59	52	52	52	46	46	46	41	41	41	37	37	37
	C	0-7	87	87	52	87	80	44	87	69	39	87	60	35	87	53	32	87	48	29	83	43	27	69	36	23	58	31	19	50	27	17	43	23	15	38	20	19	34	18	17
		7-27	87	87	54	87	82	48	87	72	42	87	63	38	87	56	34	87	50	31	87	45	29	77	38	24	65	32	21	56	28	18	48	25	16	42	22	21	37	19	19
		27-45	81	81	81	81	81	81	80	80	80	73	73	73	67	67	67	62	62	62	58	58	58	50	50	50	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	87	73	41	87	63	37	87	55	33	87	48	30	84	43	27	75	39	24	68	36	22	57	30	19	48	26	16	41	22	14	36	19	19	32	17	16	28	15	14
		7-27	87	76	44	87	66	39	87	58	35	87	51	32	87	46	29	85	41	26	77	38	24	64	32	20	54	27	17	46	24	15	40	21	20	35	18	18	31	16	16
		27-45	81	81	81	75	75	75	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
10	B	0-7	62	62	62	62	62	62	62	62	62	62	62	54	62	62	47	62	62	42	62	62	38	62	54	32	62	44	27	62	38	24	62	33	21	55	29	18	48	26	16
		7-27	62	62	62	62	62	62	62	62	62	62	62	56	62	62	50	62	62	45	62	62	41	62	57	35	62	47	30	62	40	26	59	35	22	55	31	20	52	27	17
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	59	59	59	52	52	52	46	46	46	41	41	41	37	37	37
	C	0-7	62	62	52	62	62	44	62	62	39	62	60	35	62	53	32	62	48	29	62	43	27	62	36	23	58	31	19	50	27	17	43	23	15	38	20	19	34	18	17
		7-27	62	62	54	62	62	48	62	62	42	62	62	38	62	56	34	62	50	31	62	45	29	61	38	24	56	32	21	52	28	18	48	25	16	42	22	21	37	19	19
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	67	67	67	62	62	62	58	58	58	50	50	50	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	62	62	41	62	62	37	62	55	33	62	48	30	62	43	27	62	39	24	62	36	22	57	30	19	48	26	16	41	22	14	36	19	19	32	17	16	28	15	14
		7-27	62	62	44	62	62	39	62	58	35	62	51	32	62	46	29	62	41	26	61	38	24	56	32	20	52	27	17	46	24	15	40	21	20	35	18	18	31	16	16
		27-45	71	71	71	71	71	71	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
20	B	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	43	32	43	43	27	43	38	24	43	33	21	43	29	18	43	26	16
		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	43	40	26	41	35	22	39	31	20	38	27	17
		27-45	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	50	50	45	45	45	41	41	41	37	37	37
	C	0-7	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	43	43	29	43	43	27	43	36	23	43	31	19	43	27	17	43	23	15	38	20	19	34	18	17
		7-27	43	43	43	43	43	43	43	43	42	43	43	38	43	43	34	43	43	31	43	43	29	42	38	24	40	32	21	38	28	18	36	25	16	34	22	21	32	19	19
		27-45	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	53	53	48	48	48	43	43	43	38	38	38	34	34	34	30	30	30	27	27	27
	D	0-7	43	43	41	43	43	37	43	43	33	43	43	30	43	43	27	43	39	24	43	36	22	43	30	19	43	26	16	41	22	14	36	19	19	32	17	16	28	15	14
		7-27	43	43	43	43	43	39	43	43	35	43	43	32	43	43	29	43	41	26	42	38	24	40	32	20	37	27	17	35	24	15	33	21	20	32	18	18	30	16	16
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	52	52	52	49	49	49	42	42	42	37	37	37	32	32	32	29	29	29	26	26	26	23	23	23
30	B	0-7	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	32	42	42	27	42	38	24	42	33	21	42	29	18	42	26	16
		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	43	40	26	41	35	22	39	31	20	38	27	17
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	41	41	38	38	38	35	35	35
	C	0-7	42	42	42	42	42	42	42	42	39	42	42	35	42	42	32	42	42	29	42	42	27	42	36	23	42	31	19	42	27	17	42	23	15	38	20	19	34	18	17
		7-27	43	43	43	43	43	43	43	43	42	43	43	38	43	43	34	43	43	31	43	43	29	42	38	24	40	32	21	38	28	18	36	25	16	34	22	21	32	19	19
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	42	42	39	39	39	36	36	36	33	33	33	30	30	30	27	27	27
	D	0-7	43	43	41	43	43	37	43	43	33	43	43	30	43	43	27	43	39	24	43	36	22	43	30	19	43	26	16	41	22	14	36	19	19	32	17	16	28	15	14
		7-27	43	43	43	43	43	39	43	43	35	43	43	32	43	43	29	43	41	26	42	38	24	40	32	20	37	27	17	35	24	15	33	21	20	32	18	18	30	16	16
		27-45	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	40	40	40	36	36	36	32	32	32	29	29	29	26	26	26	23	23	23
40	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	32	35	35	27	35	35	24	35	33	21	35	29	18	35	26	16
		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	36	36	26	35	35	22	34	31	20	32	27	17
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	34	34	32	32	32
	C	0-7	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	35	27	35	35	23	35	31	19	35	27	17	34	23	15	33	20	19	32	18	17
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	37	29	36	36	24	34	32	21	33	28	18	31	25	16	30	22	21	28	19	19
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	35	33	33	33	30	30	30	28	28	28	26	26	26
	D	0-7	37	37	37	37	37	37	37	37	33	37	37	30	37	37	27	37	37	24	37	36	22	37	30	19	37	26	16	37	22	14	35	19	19	32	17	16	28	15	14
		7-27	39	39	39	39	39	39	39	39	35	39	39	32	39	39	29	39	39	26	38	38	24	36	32	20	34	27	17	33	24	15	31	21	20	29	18	18	28	16	16
		27-45	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	36	36	33	33	33	30	30	30	28	28	28	25	25	25	23	23	23
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	28	28	28	27	28	28	24	28	28	21	28	28	18	28	26	16
		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	31	31	31	30	31	31	26	30	30	22	29	29	20	28	27	17
		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30
	C	0-7	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	23	28	28	19	28	27	17	28	23	15	28	20	19	28	18	17
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	24	30	30	21	28	28	18	27	25	16	26	22	21	25	19	19
		27-45	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	28	28	28	26	26	26	24	24	24
	D	0-7	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	31	24	31	31	22	31	30	19	31	26	16	31	22	14	30	19	19	30	17	16	28	15	14
		7-27	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	26	33	33	24	31	31	20	30	27	17	29	24	15	27	21	20	26	18	18	25	16	16
		27-45	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	31	31	31	28	28	28	26	26	26	24	24	24	22	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	SM	UAF	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	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	24	24	24	21	24	24	18	24	24	16
		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	22	26	26	20	25	25	17
		27-45	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	26
	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	23	24	24	19	24	24	17	24	23	15	24	20	19	24	18	17
		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	24	26	26	21	25	25	18	24	24	16	23	22	21	23	19	19
		27-45	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	24	24	24	23	23	23
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	19	26	26	16	26	22	14	26	19	19	26	17	16	25	15	14
		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	24	28	28	20	27	27	17	26	24	15	25	21	20	24	18	18	23	16	16
		27-45	29	29	29	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	26	26	25	25	25	23	23	23	21	21	21
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	21	21	21	21	21	21	18	21	21	16
		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	22	22	22	20	22	22	17
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	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	21	21	21	19	21	21	17	21	21	15	21	20	19	21	18	17
		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	21	20	19	19
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	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	23	23	23	22	23	23	19	23	23	16	23	22	14	23	19	19	23	17	16	23	15	14
		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	24	24	17	23	23	15	22	21	20	21	18	18	21	16	16
		27-45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	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	18	18	18	16
		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	20	20	20	20	20	20	17
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	18	18	18	17	18	18	15	18	18	19	18	18	17
		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	18	20	20	16	19	19	21	19	19	19
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	D	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	19	20	20	16	20	20	14	20	19	19	20	17	16	20	15	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	20	22	22	17	21	21	15	20	20	20	20	18	18	19	16	16
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	20	20	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	16
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	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	16	16	16	15	16	16	19	16	16	17
		7-27	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	19
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	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	18	18	18	16	18	18	14	18	18	19	18	17	16	18	15	14
		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	17	19	19	15	19	19	20	18	18	18	18	16	16
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	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	16
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	14	14	14	19	14	14	17
		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	21	16	16	19
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	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	14	16	16	19	16	16	16	16	15	14
		7-27	17	17	17	17	17	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	20	17	17	18	16	16	16
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	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	SM	UAF	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	1	2	3
0	B	0-7	144	144	144	144	144	144	144	144	144	144	144	142	144	144	106	144	144	78	144	139	64	144	104	54	142	80	46	129	64	40	110	56	35	95	49	31	83	43	27
		7-27	137	137	137	137	137	135	137	137	116	137	137	101	137	137	89	137	137	79	137	136	70	137	105	58	137	84	50	137	68	43	124	59	38	107	52	33	93	46	30
		27-45	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	115	115	115	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	144	144	140	144	144	89	144	141	67	144	125	60	144	104	54	144	88	49	141	76	45	121	60	38	101	52	33	85	45	28	73	39	25	64	34	33	57	31	29
		7-27	137	137	97	137	137	83	137	137	73	137	121	64	137	104	58	137	91	53	137	80	48	137	64	41	114	55	35	97	47	30	83	41	27	72	36	23	63	32	31
		27-45	127	127	127	127	127	127	127	127	127	125	125	125	115	115	115	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	144	144	75	144	134	62	144	108	55	144	90	50	141	76	45	133	66	41	119	60	38	98	51	32	82	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	137	137	77	137	128	66	137	108	59	137	93	54	137	81	49	137	71	44	136	63	41	111	54	34	93	46	29	79	40	26	68	35	34	59	31	30	53	27	26
		27-45	127	127	127	127	127	127	117	117	117	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
10	B	0-7	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	78	102	102	64	102	102	54	102	80	46	102	64	40	102	56	35	95	49	31	83	43	27
		7-27	103	103	103	103	103	103	103	103	103	103	103	101	103	103	89	103	103	79	103	103	70	103	103	58	103	84	50	103	68	43	102	59	38	96	52	33	89	46	30
		27-45	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	102	102	102	102	102	89	102	102	67	102	102	60	102	102	54	102	88	49	102	76	45	102	60	38	101	52	33	85	45	28	73	39	25	64	34	33	57	31	29
		7-27	103	103	97	103	103	83	103	103	73	103	103	64	103	103	58	103	91	53	103	80	48	103	64	41	98	55	35	91	47	30	83	41	27	72	36	23	63	32	31
		27-45	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	106	106	106	98	98	98	84	84	84	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	102	102	75	102	102	62	102	102	55	102	90	50	102	76	45	102	66	41	102	60	38	98	51	32	82	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	103	103	77	103	103	66	103	103	59	103	93	54	103	81	49	103	71	44	103	63	41	97	54	34	89	46	29	79	40	26	68	35	34	59	31	30	53	27	26
		27-45	114	114	114	114	114	114	114	114	114	107	107	107	98	98	98	90	90	90	83	83	83	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
20	B	0-7	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	54	72	72	46	72	64	40	72	56	35	72	49	31	72	43	27
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	84	84	84	76	76	76	69	69	69	62	62	62
	C	0-7	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	49	72	72	45	72	60	38	72	52	33	72	45	28	72	39	25	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	27	57	36	23	54	32	31
		27-45	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	81	81	81	73	73	73	63	63	63	56	56	56	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	26	56	35	34	53	31	30	50	27	26
		27-45	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	87	87	87	82	82	82	71	71	71	62	62	62	54	54	54	48	48	48	43	43	43	38	38	38
30	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	54	70	70	46	70	64	40	70	56	35	70	49	31	70	43	27
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	68	43	69	59	38	65	52	33	63	46	30
		27-45	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	68	68	63	63	63	58	58	58
	C	0-7	70	70	70	70	70	70	70	70	67	70	70	60	70	70	54	70	70	49	70	70	45	70	60	38	70	52	33	70	45	28	70	39	25	64	34	33	57	31	29
		7-27	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	72	53	72	72	48	71	64	41	67	55	35	63	47	30	60	41	27	57	36	23	54	32	31
		27-45	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	71	71	65	65	65	60	60	60	55	55	55	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	62	72	72	55	72	72	50	72	72	45	72	66	41	72	60	38	72	51	32	72	43	27	70	38	24	61	33	31	53	29	28	47	26	25
		7-27	72	72	72	72	72	66	72	72	59	72	72	54	72	72	49	72	71	44	70	63	41	66	54	34	63	46	29	59	40	26	56	35	34	53	31	30	50	27	26
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	73	73	73	66	66	66	60	60	60	54	54	54	48	48	48	43	43	43	38	38	38
40	B	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	46	58	58	40	58	56	35	58	49	31	58	43	27
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	50	60	60	43	58	58	38	56	52	33	54	46	30
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	57	57	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	49	58	58	45	58	58	38	58	52	33	58	45	28	58	39	25	56	34	33	54	31	29
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	48	59	59	41	57	55	35	55	47	30	52	41	27	50	36	23	48	32	31
		27-45	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	59	59	54	54	54	50	50	50	47	47	47	43	43	43
	D	0-7	62	62	62	62	62	62	62	62	55	62	62	50	62	62	45	62	62	41	62	60	38	62	51	32	62	43	27	61	38	24	59	33	31	53	29	28	47	26	25
		7-27	66	66	66	66	66	66	66	66	59	66	66	54	66	66	49	65	65	44	63	63	41	60	54	34	57	46	29	55	40	26	52	35	34	49	31	30	47	27	26
		27-45	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	61	61	55	55	55	51	51	51	47	47	47	43	43	43	38	38	38
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	47	47	47	46	47	47	40	47	47	35	47	47	31	47	43	27
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	43	50	50	38	49	49	33	47	46	30
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50
	C	0-7	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	38	47	47	33	47	45	28	47	39	25	47	34	33	47	31	29
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	49	49	35	48	47	30	46	41	27	44	36	23	42	32	31
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	47	47	47	43	43	43	40	40	40
	D	0-7	52	52	52	52	52	52	52	52	52	52	52	50	52	52	45	52	52	41	52	52	38	52	51	32	52	43	27	52	38	24	51	33	31	49	29	28	47	26	25
		7-27	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	56	56	44	55	55	41	53	53	34	50	46	29	48	40	26	46	35	34	44	31	30	42	27	26
		27-45	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	51	51	47	47	47	44	44	44	40	40	40	37	37	37

* 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	SM	UAF	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	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	40	40	40	35	40	40	31	40	40	27
		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	43	43	43	43	43	43	43	43	43	38	43	43	33	42	42	30
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	28	40	39	25	40	34	33	40	31	29
		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	41	43	43	35	42	42	30	41	41	27	39	36	23	38	32	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	41	41	38	38	38
	D	0-7	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	38	44	44	32	44	43	27	44	38	24	44	33	31	44	29	28	42	26	25
		7-27	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	48	48	41	47	47	34	45	45	29	43	40	26	41	35	34	40	31	30	38	27	26
		27-45	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	44	44	41	41	41	38	38	38	35	35	35
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	35	35	35	31	35	35	27
		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	37	37	37	37	37	37	37	37	37	33	37	37	30
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		27-45	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	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	30	30	30	27	30	30	24	30	30	31	30	29	28	30	26	25
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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	24
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		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	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	24	24	24	33	24	24	29
		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	23	27	27	31
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	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	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	26
		27-45	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	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	SM	UAF	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	1	2	3
0	B	0-7	73	73	73	73	73	63	73	73	53	73	73	45	73	71	39	73	63	35	73	56	32	73	45	27	72	37	23	61	32	20	53	28	17	46	24	15	40	22	20
		7-27	73	73	68	73	73	60	73	73	53	73	73	47	73	72	42	73	64	38	73	58	34	73	47	29	73	39	25	69	33	21	59	29	19	51	26	16	45	23	15
		27-45	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	65	65	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	73	73	43	73	66	37	73	58	33	73	51	29	73	45	27	73	40	24	69	36	22	58	30	19	49	26	16	42	22	14	36	19	18	32	17	16	28	15	14
		7-27	73	73	45	73	68	40	73	60	35	73	53	32	73	47	29	73	42	26	73	38	24	65	32	20	55	27	17	47	23	15	40	20	20	35	18	17	31	16	16
		27-45	68	68	68	68	68	68	67	67	67	61	61	61	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	73	61	34	73	53	31	73	46	27	73	40	25	70	36	22	63	33	20	57	30	19	48	25	16	40	21	20	35	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
		7-27	73	63	37	73	55	33	73	48	29	73	43	27	73	38	24	71	34	22	64	31	20	53	27	17	45	23	14	39	20	19	33	17	17	29	15	15	26	20	~~13~~
		27-45	68	68	68	63	63	63	58	58	58	53	53	53	48	48	48	45	45	45	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
10	B	0-7	52	52	52	52	52	52	52	52	52	52	52	45	52	52	39	52	52	35	52	52	32	52	45	27	52	37	23	52	32	20	52	28	17	46	24	15	40	22	20
		7-27	52	52	52	52	52	52	52	52	52	52	52	47	52	52	42	52	52	38	52	52	34	52	47	29	52	39	25	52	33	21	49	29	19	46	26	16	43	23	15
		27-45	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	57	57	57	49	49	49	44	44	44	39	39	39	34	34	34	31	31	31
	C	0-7	52	52	43	52	52	37	52	52	33	52	51	29	52	45	27	52	40	24	52	36	22	52	30	19	49	26	16	42	22	14	36	19	18	32	17	16	28	15	14
		7-27	52	52	45	52	52	40	52	52	35	52	52	32	52	47	29	52	42	26	52	38	24	51	32	20	47	27	17	44	23	15	40	20	20	35	18	17	31	16	16
		27-45	58	58	58	58	58	58	58	58	58	58	58	58	56	56	56	52	52	52	48	48	48	41	41	41	36	36	36	32	32	32	28	28	28	25	25	25	22	22	22
	D	0-7	52	52	34	52	52	31	52	46	27	52	40	25	52	36	22	52	33	20	52	30	19	48	25	16	40	21	20	35	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
		7-27	52	52	37	52	52	33	52	48	29	52	43	27	52	38	24	52	34	22	51	31	20	47	27	17	43	23	14	39	20	19	33	17	17	29	15	15	26	20	~~13~~
		27-45	60	60	60	60	60	60	58	58	58	53	53	53	48	48	48	45	45	45	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
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		27-45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	42	42	38	38	38	34	34	34	31	31	31
	C	0-7	36	36	36	36	36	36	36	36	33	36	36	29	36	36	27	36	36	24	36	36	22	36	30	19	36	26	16	36	22	14	36	19	18	32	17	16	28	15	14
		7-27	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	36	24	35	32	20	33	27	17	32	23	15	30	20	20	29	18	17	27	16	16
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	D	0-7	36	36	34	36	36	31	36	36	27	36	36	25	36	36	22	36	33	20	36	30	19	36	25	16	36	21	20	35	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
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		27-45	47	47	47	47	47	47	47	47	47	47	47	47	46	46	46	43	43	43	41	41	41	35	35	35	31	31	31	27	27	27	24	24	24	21	21	21	19	19	19
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	D	0-7	31	31	31	31	31	31	31	31	27	31	31	25	31	31	22	31	31	20	31	30	19	31	25	16	31	21	20	31	19	18	30	16	15	26	14	~~14~~	23	19	~~12~~
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		27-45	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	30	30	28	28	28	25	25	25	23	23	23	21	21	21	19	19	19
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		27-45	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	25	25
	C	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	22	14	24	19	18	24	17	16	23	15	14
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	20	25	25	17	24	23	15	23	20	20	22	18	17	21	16	16
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	D	0-7	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	26	20	26	26	19	26	25	16	26	21	20	26	19	18	25	16	15	25	14	~~14~~	23	19	~~12~~
		7-27	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	22	27	27	20	26	26	17	25	23	14	24	20	19	23	17	17	22	15	15	21	20	~~13~~
		27-45	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	26	26	24	24	24	22	22	22	20	20	20	19	19	19

* 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	SM	UAF	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	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	20	20	20	17	20	20	15	20	20	20
		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	21	22	22	19	21	21	16	21	21	15
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	C	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	19	20	20	16	20	20	14	20	19	18	20	17	16	20	15	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	20	22	22	17	21	21	15	20	20	20	20	18	17	19	16	16
		27-45	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	20	20	19	19	19
	D	0-7	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	19	22	22	16	22	21	20	22	19	18	22	16	15	22	14	~~14~~	21	19	~~12~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	20	23	23	17	22	22	14	21	20	19	21	17	17	20	15	15	19	20	~~13~~
		27-45	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	20	20	20	19	19	19	18	18	18
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	17	17	17	15	17	17	20
		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	19	19	19	19	19	19	16	19	19	15
		27-45	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	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	17	17	17	16	17	17	14	17	17	18	17	17	16	17	15	14
		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	17	19	19	15	18	18	20	18	18	17	17	16	16
		27-45	19	19	19	19	19	19	19	19	19	19	19	19	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	18	18
	D	0-7	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	20	19	19	18	19	16	15	19	14	~~14~~	19	19	~~12~~
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	20	20	14	19	19	19	19	17	17	18	15	15	17	20	~~13~~
		27-45	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	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	15	15	15	20
		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	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
	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	15	15	15	14	15	15	18	15	15	16	15	15	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	15	16	16	20	16	16	17	16	16	16
		27-45	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	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	17	17	17	16	17	17	20	17	17	18	17	16	15	17	14	~~14~~	17	19	~~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	17	18	18	14	18	18	19	17	17	17	16	15	15	16	20	~~13~~
		27-45	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	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	20
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	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	13	13	13	18	13	13	16	13	13	14
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	24	16
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
	D	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	20	15	15	18	15	15	15	15	14	~~14~~	15	19	~~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	14	16	16	19	16	16	17	15	15	15	15	20	~~13~~
		27-45	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	24	24
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	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	12	12	12	18	12	12	16	12	12	14
		7-27	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	16
		27-45	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	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	20	13	13	18	13	13	15	13	13	~~14~~	13	19	~~12~~
		7-27	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17	24	23	15	24	20	~~13~~
		27-45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22

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SPAN TABLES

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0	B	0-7	141	141	141	141	141	141	141	141	141	141	141	141	141	141	97	141	141	74	141	138	63	141	100	53	141	77	45	125	62	39	107	54	34	93	48	30	81	43	27
		7-27	134	134	134	134	134	131	134	134	113	134	134	98	134	134	86	134	134	76	134	132	68	134	102	57	134	81	49	134	66	42	121	58	37	105	51	33	91	45	29
		27-45	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	113	113	113	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	141	141	139	141	141	83	141	140	65	141	120	58	141	100	53	141	85	48	140	73	44	118	59	37	98	51	32	83	44	28	72	38	36	62	34	32	55	30	29
		7-27	134	134	94	134	134	81	134	134	71	134	117	63	134	101	57	134	88	52	134	78	47	134	62	40	111	53	34	94	46	30	81	40	39	70	36	35	61	32	31
		27-45	124	124	124	124	124	124	124	124	124	122	122	122	112	112	112	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	141	141	71	141	128	60	141	104	54	141	87	49	140	74	44	129	64	40	117	59	37	96	50	31	80	42	27	68	37	35	59	32	31	52	28	27	46	38	24
		7-27	134	134	75	134	124	65	134	105	58	134	90	52	134	78	48	134	69	43	132	62	40	109	52	34	91	45	29	77	39	38	66	34	33	58	30	29	52	40	26
		27-45	124	124	124	124	124	124	114	114	114	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
10	B	0-7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	100	100	74	100	100	63	100	100	53	100	77	45	100	62	39	100	54	34	93	48	30	81	43	27
		7-27	101	101	101	101	101	101	101	101	101	101	101	98	101	101	86	101	101	76	101	101	68	101	101	57	101	81	49	101	66	42	99	58	37	93	51	33	87	45	29
		27-45	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	100	100	100	100	100	83	100	100	65	100	100	58	100	100	53	100	85	48	100	73	44	100	59	37	98	51	32	83	44	28	72	38	36	62	34	32	55	30	29
		7-27	101	101	94	101	101	81	101	101	71	101	101	63	101	101	57	101	88	52	101	78	47	101	62	40	96	53	34	88	46	30	81	40	39	70	36	35	61	32	31
		27-45	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	103	103	103	95	95	95	82	82	82	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	100	100	71	100	100	60	100	100	54	100	87	49	100	74	44	100	64	40	100	59	37	96	50	31	80	42	27	68	37	35	59	32	31	52	28	27	46	38	24
		7-27	101	101	75	101	101	65	101	101	58	101	90	52	101	78	48	101	69	43	101	62	40	95	52	34	87	45	29	77	39	38	66	34	33	58	30	29	52	40	26
		27-45	111	111	111	111	111	111	111	111	111	105	105	105	96	96	96	88	88	88	81	81	81	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
20	B	0-7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	53	70	70	45	70	62	39	70	54	34	70	48	30	70	43	27
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	29
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	82	82	75	75	75	67	67	67	60	60	60
	C	0-7	70	70	70	70	70	70	70	70	65	70	70	58	70	70	53	70	70	48	70	70	44	70	59	37	70	51	32	70	44	28	70	38	36	62	34	32	55	30	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	30	59	40	39	56	36	35	53	32	31
		27-45	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	79	79	79	71	71	71	62	62	62	55	55	55	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	27	68	37	35	59	32	31	52	28	27	46	38	24
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	29	58	39	38	55	34	33	52	30	29	49	40	26
		27-45	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	85	85	85	80	80	80	69	69	69	60	60	60	53	53	53	47	47	47	42	42	42	38	38	38
30	B	0-7	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	53	68	68	45	68	62	39	68	54	34	68	48	30	68	43	27
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	71	71	57	71	71	49	70	66	42	67	58	37	64	51	33	61	45	29
		27-45	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	65	68	68	58	68	68	53	68	68	48	68	68	44	68	59	37	68	51	32	68	44	28	68	38	36	62	34	32	55	30	29
		7-27	71	71	71	71	71	71	71	71	71	71	71	63	71	71	57	71	71	52	71	71	47	69	62	40	65	53	34	62	46	30	59	40	39	56	36	35	53	32	31
		27-45	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	63	63	58	58	58	53	53	53	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	60	70	70	54	70	70	49	70	70	44	70	64	40	70	59	37	70	50	31	70	42	27	68	37	35	59	32	31	52	28	27	46	38	24
		7-27	71	71	71	71	71	65	71	71	58	71	71	52	71	71	48	71	69	43	69	62	40	65	52	34	61	45	29	58	39	38	55	34	33	52	30	29	49	40	26
		27-45	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	72	72	72	65	65	65	59	59	59	53	53	53	47	47	47	42	42	42	38	38	38
40	B	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	45	57	57	39	57	54	34	57	48	30	57	43	27
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	49	59	59	42	57	57	37	55	51	33	53	45	29
		27-45	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	56	56	52	52	52
	C	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	57	44	57	57	37	57	51	32	57	44	28	56	38	36	55	34	32	53	30	29
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	60	47	58	58	40	56	53	34	53	46	30	51	40	39	49	36	35	47	32	31
		27-45	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	53	53	53	49	49	49	46	46	46	42	42	42
	D	0-7	61	61	61	61	61	60	61	61	54	61	61	49	61	61	44	61	61	40	61	59	37	61	50	31	61	42	27	60	37	35	58	32	31	52	28	27	46	38	24
		7-27	64	64	64	64	64	64	64	64	58	64	64	52	64	64	48	63	63	43	62	62	40	59	52	34	56	45	29	53	39	38	51	34	33	48	30	29	45	40	26
		27-45	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	59	59	59	54	54	54	50	50	50	45	45	45	42	42	42	38	38	38
50	B	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	34	46	46	30	46	43	27
		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	50	50	50	49	50	50	42	49	49	37	48	48	33	46	45	29
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	48	48
	C	0-7	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	37	46	46	32	46	44	28	46	38	36	46	34	32	46	30	29
		7-27	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	40	48	48	34	47	46	30	45	40	39	43	36	35	41	32	31
		27-45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	46	46	46	42	42	42	40	40	40
	D	0-7	51	51	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	40	51	51	37	51	50	31	51	42	27	51	37	35	50	32	31	48	28	27	46	38	24
		7-27	55	55	55	55	55	55	55	55	55	55	55	52	55	55	48	55	55	43	54	54	40	51	51	34	49	45	29	47	39	38	45	34	33	43	30	29	41	40	26
		27-45	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	50	50	46	46	46	43	43	43	39	39	39	36	36	36

* 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	SM	UAF	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	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	39	39	39	39	39	39	34	39	39	30	39	39	27
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	33	41	41	29
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
	C	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	28	39	38	36	39	34	32	39	30	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	41	41	30	40	40	39	38	36	35	37	32	31
		27-45	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	40	40	37	37	37
	D	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	37	43	43	31	43	42	27	43	37	35	43	32	31	43	28	27	42	38	~~24~~
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	40	46	46	34	44	44	29	42	39	38	40	34	33	39	30	29	37	40	~~26~~
		27-45	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	43	43	40	40	40	37	37	37	35	35	35
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	34	34	34	30	34	34	27
		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	37	37	37	37	37	37	37	37	37	33	37	37	29
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
	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	34	34	34	32	34	34	28	34	34	36	34	34	32	34	30	29
		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	34	37	37	30	36	36	39	35	35	35	34	32	31
		27-45	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	35	35
	D	0-7	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	27	37	37	35	37	32	31	37	28	27	37	38	~~24~~
		7-27	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	29	38	38	38	37	34	33	35	30	29	34	40	~~26~~
		27-45	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	38	38	35	35	35	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	30	30	30	27
		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	32	32	32	29
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	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	30	30	30	28	30	30	36	30	30	32	30	30	29
		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	30	32	32	39	32	32	35	31	31	31
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	D	0-7	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	33	35	33	32	31	33	28	27	33	38	~~24~~
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	29	35	35	38	34	34	33	32	30	29	31	40	~~26~~
		27-45	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	34	34	31	31	31
90	B	0-7	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	26
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	C	0-7	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	36	26	26	32	26	26	29
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	39	46	46	35	46	46	31
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	D	0-7	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	35	29	29	31	29	28	27	29	38	~~24~~
		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	29	32	32	38	31	31	33	30	30	29	29	40	~~26~~
		27-45	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	48	48	48	45	45	45
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	24
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	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	36	24	24	32	24	24	29
		7-27	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	35	42	42	31
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	D	0-7	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	35	26	26	31	26	26	27	26	38	~~24~~
		7-27	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	33	46	45	29	46	40	~~26~~
		27-45	44	44	44	44	44	44	44	44	44	44	44	44	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	43	43

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

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~~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.