Span Tables

Design Criteria for Span Tables:

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

Building Assumptions

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

Wind Design Assumptions

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

Snow Design Assumptions

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

Seismic Design Assumptions

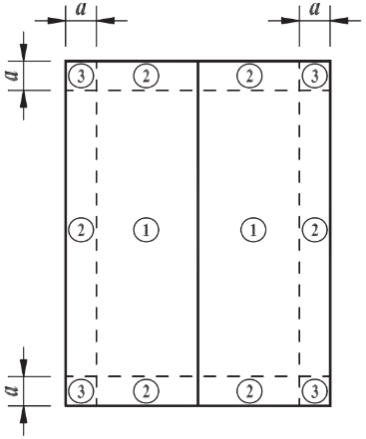
- 0.2-s Spectral Response Acceleration
- S_S = 1.25 and 3 per criteria shown on individual span tables sheets.
- S_1 = 0.5
- Seismic site class D

Array Assumptions

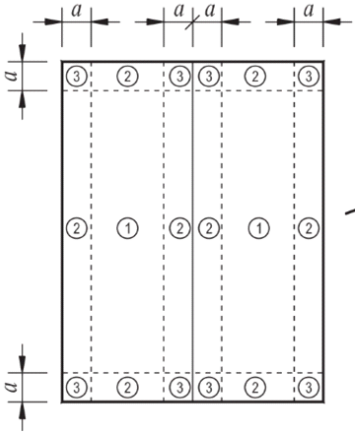
- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1” x 67” (~19 sq.ft, 47.65 lbs) and 41” x 80” (~23 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at least twice the module height above roof surface.
- Modules are parallel to roof surface and maximum height above roof surface is 5” to 10” depending on attachment type.
- Gaps between module rows and columns is 0.25” in to 1” depending on clamp type.
- The most restrictive of all roof zone spans shall be used when any part of the module is attributed to that span.

Span Tables

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

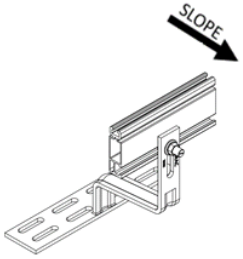


Gable Roofs θ ≤ 7°



Gable Roofs 7°< θ ≤ 45°

Rails can be installed in these possible orientations.

	*CT2
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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	87	87	87	87	87	87	87	87	75	87	87	64	87	87	55	87	86	48	87	77	43	87	62	36	87	51	31	82	42	27	71	37	23	62	33	20	54	29	27
		7-27	88	88	88	88	88	81	88	88	72	88	88	64	88	88	57	88	88	51	88	79	46	88	64	39	88	54	33	88	45	29	80	39	25	69	34	22	61	31	20
		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	61	87	87	52	87	79	44	87	69	40	87	61	36	87	54	33	87	49	30	78	40	25	65	34	22	56	30	19	48	26	25	42	23	22	38	20	19
		7-27	88	88	61	88	88	54	88	82	48	88	72	43	88	64	39	88	57	35	88	52	32	87	42	27	73	36	23	63	31	20	54	27	27	47	24	23	42	21	21
		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
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		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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		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	37	37	37	33	37	37	30	37	37	27	37	37	25	37	34	21	37	29	27	37	25	24	35	22	21	34	19	18	31	26	~~16~~
		7-27	39	39	39	39	39	39	39	39	39	39	39	36	39	39	32	39	39	29	38	38	27	36	36	23	34	30	19	33	26	26	31	23	22	29	20	20	28	27	~~18~~
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	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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		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	27	30	30	23	28	28	20	27	27	27	26	24	23	25	21	21
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		7-27	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	33	33	27	31	31	23	30	30	19	29	26	26	27	23	22	26	20	20	25	27	~~18~~
		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	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	PRO SERIES	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	27
		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	25	26	26	22	25	25	20
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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	24	24	24	24	24	24	22	24	24	19	24	24	25	24	23	22	24	20	19
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		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	28	28	23	27	27	19	26	26	26	25	23	22	24	20	20	23	27	~~18~~
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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	22	22	22	20
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		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	21	21	21
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		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	19	23	23	26	22	22	22	21	20	20	21	27	~~18~~
		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
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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	18	18	18	25	18	18	22	18	18	19
		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	27	19	19	23	19	19	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
	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	20	20	20	27	20	20	24	20	20	21	20	19	18	20	26	~~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	19	21	21	26	20	20	22	20	20	20	19	27	~~18~~
		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	24	16	16	22	16	16	19
		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	26	17	17	23	17	17	21
		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	27	18	18	24	18	18	21	18	18	18	18	26	~~16~~
		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	26	19	19	22	18	18	20	18	27	~~18~~
		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	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
		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	22	14	14	19
		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	23	25	25	21
		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	24	16	16	21	16	16	18	16	24	~~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	26	17	17	22	17	17	20	16	25	~~18~~
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	144	144	144	144	144	144	144	144	144	144	144	142	144	144	135	144	144	113	144	139	82	144	128	61	142	96	52	135	75	45	124	62	39	107	55	35	94	49	31
		7-27	145	145	143	145	145	137	145	145	132	145	145	117	145	145	103	145	142	91	145	137	81	145	124	65	145	98	56	140	80	48	134	66	42	122	58	37	106	51	33
		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	132	144	141	89	144	135	68	144	127	60	144	106	55	141	91	50	132	69	43	114	58	36	97	50	32	83	44	42	72	39	37	63	34	33
		7-27	145	145	112	145	145	96	145	139	84	145	134	73	145	123	65	145	107	59	145	94	54	138	74	46	129	61	39	109	53	34	94	46	45	81	41	40	71	36	35
		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	105	144	137	74	144	131	62	144	109	56	141	92	51	136	78	46	132	68	42	111	57	36	93	48	31	79	42	40	68	37	35	60	32	31	53	43	27
		7-27	145	142	89	145	135	77	145	127	67	145	109	60	145	94	54	142	83	50	137	73	45	126	60	38	105	51	33	89	44	43	77	39	38	67	34	33	59	46	30
		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	102	102	102	82	102	102	61	102	96	52	102	75	45	102	62	39	102	55	35	94	49	31
		7-27	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	91	103	103	81	103	103	65	103	98	56	103	80	48	102	66	42	96	58	37	89	51	33
		27-45	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	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	102	102	102	89	102	102	68	102	102	60	102	102	55	102	91	50	102	69	43	102	58	36	97	50	32	83	44	42	72	39	37	63	34	33
		7-27	103	103	103	103	103	96	103	103	84	103	103	73	103	103	65	103	103	59	103	94	54	103	74	46	98	61	39	91	53	34	84	46	45	77	41	40	71	36	35
		27-45	143	143	143	143	143	143	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	102	102	102	74	102	102	62	102	102	56	102	92	51	102	78	46	102	68	42	102	57	36	93	48	31	79	42	40	68	37	35	60	32	31	53	43	27
		7-27	103	103	89	103	103	77	103	103	67	103	103	60	103	94	54	103	83	50	103	73	45	97	60	38	89	51	33	82	44	43	75	39	38	67	34	33	59	46	30
		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	72	72	72	61	72	72	52	72	72	45	72	62	39	72	55	35	72	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		27-45	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	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	72	72	72	68	72	72	60	72	72	55	72	72	50	72	69	43	72	58	36	72	50	32	72	44	42	69	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	60	46	45	57	41	40	54	36	35
		27-45	105	105	105	105	105	105	105	105	105	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	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	40	68	37	35	60	32	31	53	43	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	43	56	39	38	53	34	33	50	46	30
		27-45	112	112	112	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	70	70	70	61	70	70	52	70	70	45	70	62	39	70	55	35	70	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		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	70	70	70	68	70	70	60	70	70	55	70	70	50	70	69	43	70	58	36	70	50	32	70	44	42	67	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	63	46	45	57	41	40	54	36	35
		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	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	40	68	37	35	60	32	31	53	43	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	43	56	39	38	53	34	33	50	46	30
		27-45	84	84	84	84	84	84	84	84	84	84	84	84	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	52	58	58	45	58	58	39	58	55	35	58	49	31
		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	56	60	60	48	58	58	42	56	56	37	54	51	33
		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	58	58	58	55	58	58	50	58	58	43	58	58	36	58	50	32	58	44	42	56	39	37	54	34	33
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	59	59	46	57	57	39	55	53	34	52	46	45	50	41	40	48	36	35
		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	62	62	62	56	62	62	51	62	62	46	62	62	42	62	57	36	62	48	31	61	42	40	59	37	35	57	32	31	53	43	27
		7-27	66	66	66	66	66	66	66	66	66	66	66	60	66	66	54	65	65	50	63	63	45	60	60	38	57	51	33	55	44	43	52	39	38	49	34	33	47	46	30
		27-45	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	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	47	45	47	47	39	47	47	35	47	47	31
		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	51	48	50	50	42	49	49	37	47	47	33
		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	50	50	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	47	47	47	43	47	47	36	47	47	32	47	44	42	47	39	37	54	34	33
		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	46	49	49	39	48	48	34	46	46	45	44	41	40	42	36	35
		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	52	52	52	51	52	52	46	52	52	42	52	52	36	52	48	31	52	42	40	51	37	35	49	32	31	48	43	27
		7-27	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	56	56	50	55	55	45	53	53	38	50	50	33	48	44	43	46	39	38	44	34	33	42	46	30
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	35	40	40	31
		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	42	43	43	37	42	42	33
		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
	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	40	40	40	36	40	40	32	40	40	42	40	39	37	40	34	33
		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	39	42	42	34	41	41	45	39	39	40	38	36	35
		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	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	44	44	44	42	44	44	36	44	44	31	44	42	40	44	37	35	44	32	31	42	43	27
		7-27	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	47	47	38	45	45	33	43	43	43	41	39	38	40	34	33	38	46	30
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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	45	45	45	45	45	45	45	45	45	45	45	45
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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	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
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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	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 = 1.25	22.78 sq.ft	PORTRAIT	CROSS-SLOPE	SM	PRO SERIES	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	73	73	73	73	73	73	73	73	62	73	73	53	73	73	46	73	72	40	73	64	36	73	51	30	73	42	26	69	35	22	59	31	19	52	27	26	45	24	23
		7-27	73	73	73	73	73	68	73	73	60	73	73	53	73	73	48	73	73	43	73	66	39	73	54	32	73	45	28	73	38	24	67	33	21	58	29	18	51	25	25
		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	51	73	73	43	73	66	37	73	58	33	73	51	30	73	46	27	73	41	25	65	34	21	55	29	18	47	25	24	40	22	21	35	19	~~18~~	31	26	~~16~~
		7-27	73	73	51	73	73	45	73	68	40	73	60	36	73	54	32	73	48	29	73	43	27	73	35	23	61	30	19	52	26	25	45	23	22	40	20	20	35	27	~~17~~
		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	70	39	73	61	34	73	53	31	73	46	28	73	41	25	71	37	23	64	33	21	53	28	27	45	24	23	39	21	20	34	27	~~17~~	30	24	~~15~~	26	21	~~14~~
		7-27	73	72	42	73	63	37	73	55	33	73	49	30	73	43	27	73	39	25	72	35	22	60	30	19	51	25	25	43	22	21	38	19	19	33	26	~~16~~	29	23	~~15~~
		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	52	52	52	46	52	52	40	52	52	36	52	51	30	52	42	26	52	35	22	52	31	19	52	27	26	45	24	23
		7-27	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	43	52	52	39	52	52	32	52	45	28	52	38	24	49	33	21	46	29	18	43	25	25
		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
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		7-27	52	52	51	52	52	45	52	52	40	52	52	36	52	52	32	52	48	29	52	43	27	51	35	23	47	30	19	44	26	25	41	23	22	38	20	20	35	27	~~17~~
		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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		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
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		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	23	25	25	19	24	24	25	23	23	22	22	20	20	21	27	~~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	25	25	25	23	23	23	22	22	22	22	20	20	20	20	20
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	27	26	24	23	26	21	20	25	27	~~17~~	25	24	~~15~~	24	21	~~14~~
		7-27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	27	27	22	26	26	19	25	25	25	24	22	21	23	19	19	22	26	~~16~~	21	23	~~15~~
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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UNIRAC

ASCE 7-10	II	30 ft	Ss = 1.25	22.78 sq.ft	LANDSCAPE	CROSS-SLOPE	SM	PRO SERIES	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	103	141	138	78	141	123	59	141	92	51	134	73	44	121	61	38	105	54	34	91	48	45
		7-27	141	141	141	141	141	136	141	141	131	141	141	114	141	141	100	141	141	88	141	136	78	141	120	64	141	95	55	139	77	47	133	64	41	119	57	36	103	50	49
		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	131	141	140	84	141	134	65	141	122	59	141	102	54	140	87	49	131	67	42	111	57	36	94	49	47	81	43	41	70	38	36	62	50	32
		7-27	141	141	109	141	141	94	141	138	81	141	132	71	141	119	63	141	103	58	141	91	53	137	72	45	126	60	38	107	52	50	91	45	44	79	40	39	69	35	34
		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	96	141	136	70	141	127	60	141	105	55	140	88	49	135	76	45	131	66	41	109	55	35	91	47	45	77	41	39	66	36	34	58	48	30	52	42	27
		7-27	141	140	86	141	134	74	141	123	65	141	106	59	141	92	53	141	80	48	136	71	44	123	59	38	103	50	49	87	43	42	75	38	37	65	50	33	58	45	29
		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	100	100	100	100	100	100	78	100	100	59	100	92	51	100	73	44	100	61	38	100	54	34	91	48	45
		7-27	101	101	101	101	101	101	101	101	101	101	101	101	101	101	100	101	101	88	101	101	78	101	101	64	101	95	55	101	77	47	99	64	41	93	57	36	87	50	49
		27-45	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	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	100	100	100	84	100	100	65	100	100	59	100	100	54	100	87	49	100	67	42	100	57	36	94	49	47	81	43	41	70	38	36	62	50	32
		7-27	101	101	101	101	101	94	101	101	81	101	101	71	101	101	63	101	101	58	101	91	53	101	72	45	96	60	38	88	52	50	82	45	44	75	40	39	69	35	34
		27-45	140	140	140	140	140	140	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	96	100	100	70	100	100	60	100	100	55	100	88	49	100	76	45	100	66	41	100	55	35	91	47	45	77	41	39	66	36	34	58	48	30	52	42	27
		7-27	101	101	86	101	101	74	101	101	65	101	101	59	101	92	53	101	80	48	101	71	44	95	59	38	87	50	49	79	43	42	73	38	37	65	50	33	58	45	29
		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	70	70	70	59	70	70	51	70	70	44	70	61	38	70	54	34	70	48	45
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	49
		27-45	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	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	70	70	70	65	70	70	59	70	70	54	70	70	49	70	67	42	70	57	36	70	49	47	70	43	41	67	38	36	62	50	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	50	59	45	44	56	40	39	53	35	34
		27-45	103	103	103	103	103	103	103	103	103	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	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	45	69	41	39	66	36	34	58	48	30	52	42	27
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	49	58	43	42	55	38	37	52	50	33	49	45	29
		27-45	110	110	110	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	68	68	68	59	68	68	51	68	68	44	68	61	38	68	54	34	68	48	45
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	49
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	72	72	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	68	68	68	65	68	68	59	68	68	54	68	68	49	68	67	42	68	57	36	68	49	47	68	43	41	65	38	36	62	50	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	50	59	45	44	56	40	39	53	35	34
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	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	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	45	69	41	39	66	36	34	58	48	30	52	42	27
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	49	58	43	42	55	38	37	52	50	33	49	45	29
		27-45	82	82	82	82	82	82	82	82	82	82	82	82	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	57	57	57	51	57	57	44	57	57	38	57	54	34	57	48	45
		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	60	60	60	55	59	59	47	57	57	41	55	55	36	53	50	49
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	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	57	57	57	54	57	57	49	57	57	42	57	57	36	57	49	47	56	43	41	55	38	36	53	50	32
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	58	58	45	56	56	38	53	52	50	51	45	44	49	40	39	47	35	34
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	58	58	53	53	53	49	49	49	46	46	46	42	42	42
	D	0-7	61	61	61	61	61	61	61	61	60	61	61	55	61	61	49	61	61	45	61	61	41	61	55	35	61	47	45	60	41	39	58	36	34	56	48	30	52	42	27
		7-27	64	64	64	64	64	64	64	64	64	64	64	59	64	64	53	63	63	48	62	62	44	59	59	38	56	50	49	53	43	42	51	38	37	48	50	33	45	45	29
		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	46	46	46	44	46	46	38	46	46	34	46	46	45
		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	50	50	50	47	49	49	41	48	48	36	46	46	49
		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	46	46	46	42	46	46	36	46	46	47	46	43	41	46	38	36	46	50	32
		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	45	48	48	38	47	47	50	45	45	44	43	40	39	41	35	34
		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	51	51	51	49	51	51	45	51	51	41	51	51	35	51	47	45	51	41	39	50	36	34	48	48	30	47	42	27
		7-27	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	48	54	54	44	51	51	38	49	49	49	47	43	42	45	38	37	43	50	33	41	45	29
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	34	39	39	45
		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	36	41	41	49
		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	42	42	42	42	42	42
	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	39	39	39	36	39	39	47	39	39	41	39	38	36	39	50	32
		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	38	41	41	50	40	40	44	38	38	39	37	35	34
		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	42	42	42	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	43	43	43	41	43	43	35	43	43	45	43	41	39	43	36	34	43	48	30	42	42	27
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	46	46	38	44	44	49	42	42	42	40	38	37	39	50	33	37	45	29
		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	34	34	34	45
		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	36	37	37	49
		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	34	34	34	47	34	34	41	34	34	36	34	50	32
		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	50	36	36	44	35	35	39	34	34	34
		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	35	37	37	45	37	37	39	37	36	34	37	48	30	37	42	27
		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	38	40	40	49	38	38	42	37	37	37	35	50	33	34	45	29
		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	45
		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	51	51	51	51	51	51	51	51	51	51	51	51	49
		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	45	30	30	41	30	30	36	30	45	32
		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	51	51	51	49	51	51	44	51	51	39	51	51	34
		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	33	33	33	45	33	33	39	33	33	34	33	48	30	33	42	27
		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	36	36	36	49	35	35	42	34	34	37	32	49	33	31	45	29
		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	40	26	26	36	26	40	32
		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	43	46	46	39	46	46	34
		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	44	29	29	39	29	29	34	29	44	30	29	42	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	48	51	51	42	51	51	37	51	45	33	51	44	29
		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	48	48	48	48	48	48	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	36	24	36	32
		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	39	42	42	34
		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	39	26	26	34	26	40	30	26	40	27
		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	42	46	46	37	46	42	33	46	41	29
		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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UNIRAC

ASCE 7-10	II	30 ft	Ss = 3.00	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	SM	PRO SERIES	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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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 = 3.00	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	SM	PRO SERIES	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	27
		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	25	26	26	22	25	25	20
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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	24	24	24	24	24	24	22	24	24	19	24	24	25	24	23	22	24	20	19
		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	20	24	24	27	23	23	23	23	21	21
		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	24	24	24	23	23	23	23	23
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	26	27	26	25	24	26	22	21	26	19	18	25	26	~~16~~
		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	28	28	23	27	27	19	26	26	26	25	23	22	24	20	20	23	27	~~18~~
		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	20	21	21	27
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	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	21	21	21	19	21	21	25	21	21	22	21	20	19
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		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	24	24	19	23	23	26	22	22	22	21	20	20	21	27	~~18~~
		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
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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	18	18	18	25	18	18	22	18	18	19
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	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	20	20	20	27	20	20	24	20	20	21	20	19	18	20	26	~~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	19	21	21	26	20	20	22	20	20	20	19	27	~~18~~
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		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	24	16	16	22	16	16	19
		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	26	17	17	23	17	17	21
		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	27	18	18	24	18	18	21	18	18	18	18	26	~~16~~
		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	26	19	19	22	18	18	20	18	27	~~18~~
		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
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		7-27	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
		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	22	14	14	19
		7-27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	23	25	25	21
		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	24	16	16	21	16	16	18	16	24	~~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	26	17	17	22	17	17	20	16	25	~~18~~
		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	135	144	144	113	144	139	82	144	128	61	142	96	52	135	75	45	124	62	39	107	55	35	94	49	31
		7-27	136	136	136	136	136	136	136	136	132	136	136	117	136	136	103	136	136	91	136	136	81	136	124	65	136	98	56	136	80	48	134	66	42	122	58	37	106	51	33
		27-45	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	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	132	144	141	89	144	135	68	144	127	60	144	106	55	141	91	50	132	69	43	114	58	36	97	50	32	83	44	42	72	39	37	63	34	33
		7-27	136	136	112	136	136	96	136	136	84	136	134	73	136	123	65	136	107	59	136	94	54	136	74	46	129	61	39	109	53	34	94	46	45	81	41	40	71	36	35
		27-45	126	126	126	126	126	126	126	126	126	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	105	144	137	74	144	131	62	144	109	56	141	92	51	136	78	46	132	68	42	111	57	36	93	48	31	79	42	40	68	37	35	60	32	31	53	43	27
		7-27	136	136	89	136	135	77	136	127	67	136	109	60	136	94	54	136	83	50	136	73	45	126	60	38	105	51	33	89	44	43	77	39	38	67	34	33	59	46	30
		27-45	126	126	126	126	126	126	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
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		7-27	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	91	103	103	81	103	103	65	103	98	56	103	80	48	102	66	42	96	58	37	89	51	33
		27-45	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	102	102	102	102	102	102	102	102	89	102	102	68	102	102	60	102	102	55	102	91	50	102	69	43	102	58	36	97	50	32	83	44	42	72	39	37	63	34	33
		7-27	103	103	103	103	103	96	103	103	84	103	103	73	103	103	65	103	103	59	103	94	54	103	74	46	98	61	39	91	53	34	84	46	45	77	41	40	71	36	35
		27-45	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	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	102	102	102	74	102	102	62	102	102	56	102	92	51	102	78	46	102	68	42	102	57	36	93	48	31	79	42	40	68	37	35	60	32	31	53	43	27
		7-27	103	103	89	103	103	77	103	103	67	103	103	60	103	94	54	103	83	50	103	73	45	97	60	38	89	51	33	82	44	43	75	39	38	67	34	33	59	46	30
		27-45	113	113	113	113	113	113	113	113	113	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	72	72	72	61	72	72	52	72	72	45	72	62	39	72	55	35	72	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	84	84	76	76	76	69	69	69	62	62	62
	C	0-7	72	72	72	72	72	72	72	72	72	72	72	68	72	72	60	72	72	55	72	72	50	72	69	43	72	58	36	72	50	32	72	44	42	69	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	60	46	45	57	41	40	54	36	35
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	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	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	40	68	37	35	60	32	31	53	43	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	43	56	39	38	53	34	33	50	46	30
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	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	70	70	70	61	70	70	52	70	70	45	70	62	39	70	55	35	70	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		27-45	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	68	68	63	63	63	58	58	58
	C	0-7	70	70	70	70	70	70	70	70	70	70	70	68	70	70	60	70	70	55	70	70	50	70	69	43	70	58	36	70	50	32	70	44	42	67	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	60	46	45	57	41	40	54	36	35
		27-45	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	65	65	65	60	60	60	55	55	55	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	40	68	37	35	60	32	31	53	43	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	43	56	39	38	53	34	33	50	46	30
		27-45	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	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	52	58	58	45	58	58	39	58	55	35	58	49	31
		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	56	60	60	48	58	58	42	56	56	37	54	51	33
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	57	57	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	50	58	58	43	58	58	36	58	50	32	58	44	42	56	39	37	54	34	33
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	59	59	46	57	57	39	55	53	34	52	46	45	50	41	40	48	36	35
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	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	62	62	62	56	62	62	51	62	62	46	62	62	42	62	57	36	62	48	31	61	42	40	59	37	35	57	32	31	53	43	27
		7-27	66	66	66	66	66	66	66	66	66	66	66	60	66	66	54	65	65	50	63	63	45	60	60	38	57	51	33	55	44	43	52	39	38	49	34	33	47	46	30
		27-45	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	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	47	45	47	47	39	47	47	35	47	47	31
		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	51	48	50	50	42	49	49	37	47	47	33
		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	50	50	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	47	47	47	43	47	47	36	47	47	32	47	44	42	47	39	37	47	34	33
		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	46	49	49	39	48	48	34	46	46	45	44	41	40	42	36	35
		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	52	52	52	51	52	52	46	52	52	42	52	52	36	52	48	31	52	42	40	51	37	35	49	32	31	48	43	27
		7-27	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	56	56	50	55	55	45	53	53	38	50	50	33	48	44	43	46	39	38	44	34	33	42	46	30
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	35	40	40	31
		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	42	43	43	37	42	42	33
		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
	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	40	40	40	36	40	40	32	40	40	42	40	39	37	40	34	33
		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	39	42	42	34	41	41	45	39	39	40	38	36	35
		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	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	44	44	44	42	44	44	36	44	44	31	44	42	40	44	37	35	44	32	31	42	43	27
		7-27	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	47	47	38	45	45	33	43	43	43	41	39	38	40	34	33	38	46	30
		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	35	35	35	31
		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	37	37	37	33
		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	35	35	35	32	35	35	42	35	35	37	35	34	33
		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	34	37	37	45	36	36	40	34	34	35
		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	36	38	38	31	38	38	40	38	37	35	38	32	31	38	43	27
		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	38	40	40	33	39	39	43	38	38	38	36	34	33	35	46	30
		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	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	30
		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	33
		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	33	33	33
	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	30	30	30	42	30	30	37	30	30	33
		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	45	32	32	40	31	31	35
		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	33	33	33
	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	34	34	34	31	34	34	40	34	34	35	34	32	31	34	43	27
		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	36	36	36	33	36	36	43	34	34	38	33	33	33	32	46	30
		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	41	27	27	37	27	27	33
		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	44	29	29	40	29	29	35
		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	30	30	30	30	30	30	35	30	30	31	30	43	27
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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	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	37	24	24	33
		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	40	43	43	35
		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	40	27	27	35	27	27	31	27	41	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	43	29	29	38	29	29	33	28	42	30
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	73	73	73	73	73	73	73	73	62	73	73	53	73	73	46	73	72	40	73	64	36	73	51	30	73	42	26	69	35	22	59	31	19	52	27	26	45	24	23
		7-27	73	73	73	73	73	68	73	73	60	73	73	53	73	73	48	73	73	43	73	66	39	73	54	32	73	45	28	73	38	24	67	33	21	58	29	18	51	25	25
		27-45	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	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	51	73	73	43	73	66	37	73	58	33	73	51	30	73	46	27	73	41	25	65	34	21	55	29	18	47	25	24	40	22	21	35	19	~~18~~	31	26	~~16~~
		7-27	73	73	51	73	73	45	73	68	40	73	60	36	73	54	32	73	48	29	73	43	27	73	35	23	61	30	19	52	26	25	45	23	22	40	20	20	35	27	~~17~~
		27-45	67	67	67	67	67	67	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	70	39	73	61	34	73	53	31	73	46	28	73	41	25	71	37	23	64	33	21	53	28	27	45	24	23	39	21	20	34	27	~~17~~	30	24	~~15~~	26	21	~~14~~
		7-27	73	72	42	73	63	37	73	55	33	73	49	30	73	43	27	73	39	25	72	35	22	60	30	19	51	25	25	43	22	21	38	19	19	33	26	~~16~~	29	23	~~15~~
		27-45	67	67	67	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	52	52	52	46	52	52	40	52	52	36	52	51	30	52	42	26	52	35	22	52	31	19	52	27	26	45	24	23
		7-27	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	43	52	52	39	52	52	32	52	45	28	52	38	24	49	33	21	46	29	18	43	25	25
		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	51	52	52	43	52	52	37	52	52	33	52	51	30	52	46	27	52	41	25	52	34	21	52	29	18	47	25	24	40	22	21	35	19	~~18~~	31	26	~~16~~
		7-27	52	52	51	52	52	45	52	52	40	52	52	36	52	52	32	52	48	29	52	43	27	51	35	23	47	30	19	44	26	25	41	23	22	38	20	20	35	27	~~17~~
		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	39	52	52	34	52	52	31	52	46	28	52	41	25	52	37	23	52	33	21	52	28	27	45	24	23	39	21	20	34	27	~~17~~	30	24	~~15~~	26	21	~~14~~
		7-27	52	52	42	52	52	37	52	52	33	52	49	30	52	43	27	52	39	25	51	35	22	47	30	19	43	25	25	40	22	21	37	19	19	33	26	~~16~~	29	23	~~15~~
		27-45	59	59	59	59	59	59	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	36	36	36	36	36	36	30	36	36	26	36	35	22	36	31	19	36	27	26	36	24	23
		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	36	36	36	28	36	36	24	34	33	21	33	29	18	31	25	25
		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	36	36	36	33	36	36	30	36	36	27	36	36	25	36	34	21	36	29	18	36	25	24	36	22	21	34	19	~~18~~	31	26	~~16~~
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	35	35	23	33	30	19	32	26	25	30	23	22	29	20	20	27	27	~~17~~
		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
	D	0-7	36	36	36	36	36	34	36	36	31	36	36	28	36	36	25	36	36	23	36	33	21	36	28	27	36	24	23	35	21	20	34	27	~~17~~	30	24	~~15~~	26	21	~~14~~
		7-27	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	36	25	35	35	22	33	30	19	31	25	25	30	22	21	28	19	19	26	26	~~16~~	25	23	~~15~~
		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
30	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	30	35	35	26	35	35	22	35	31	19	35	27	26	35	24	23
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		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	34	34	34	31	31	31	29	29	29
	C	0-7	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	34	21	35	29	18	35	25	24	35	22	21	33	19	~~18~~	31	26	~~16~~
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	35	35	23	33	30	19	32	26	25	30	23	22	29	20	20	27	27	~~17~~
		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	32	32	32	30	30	30	27	27	27	25	25	25	22	22	22
	D	0-7	36	36	36	36	36	34	36	36	31	36	36	28	36	36	25	36	36	23	36	33	21	36	28	27	36	24	23	35	21	20	34	27	~~17~~	30	24	~~15~~	26	21	~~14~~
		7-27	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	36	25	35	35	22	33	30	19	31	25	25	30	22	21	28	19	19	26	26	~~16~~	25	23	~~15~~
		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
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	29	29	29	26	29	29	22	29	29	19	29	27	26	29	24	23
		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	28	30	30	24	29	29	21	28	28	18	27	25	25
		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	29	29	29	27	29	29	25	29	29	21	29	29	18	29	25	24	29	22	21	28	19	~~18~~	27	26	~~16~~
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	30	30	23	29	29	19	27	26	25	26	23	22	25	20	20	24	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	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	31	31	31	28	31	31	25	31	31	23	31	31	21	31	28	27	31	24	23	31	21	20	30	27	~~17~~	28	24	~~15~~	26	21	~~14~~
		7-27	33	33	33	33	33	33	33	33	33	33	33	30	33	33	27	33	33	25	32	32	22	30	30	19	29	25	25	27	22	21	26	19	19	24	26	~~16~~	23	23	~~15~~
		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
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	24	24	24	22	24	24	19	24	24	26	24	24	23
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	25	25	21	24	24	18	24	24	25
		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	24	24	24	21	24	24	18	24	24	24	24	22	21	24	19	~~18~~	23	26	~~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	23	25	25	19	24	24	25	23	23	22	22	20	20	21	27	~~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	25	25	25	23	23	23	23	22	22	22	22	22	20	20	20
	D	0-7	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	26	27	26	24	23	26	21	20	25	27	~~17~~	25	24	~~15~~	24	21	~~14~~
		7-27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	27	27	22	26	26	19	25	25	25	24	22	21	23	19	19	22	26	~~16~~	21	23	~~15~~
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

* 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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	103	141	138	78	141	123	59	141	92	51	134	73	44	121	61	38	105	54	34	91	48	45
		7-27	132	132	132	132	132	132	132	132	131	132	132	114	132	132	100	132	132	88	132	132	78	132	120	64	132	95	55	132	77	47	132	64	41	119	57	36	103	50	49
		27-45	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	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	131	141	140	84	141	134	65	141	122	59	141	102	54	140	87	49	131	67	42	111	57	36	94	49	47	81	43	41	70	38	36	62	50	32
		7-27	132	132	109	132	132	94	132	132	81	132	132	71	132	119	63	132	103	58	132	91	53	132	72	45	126	60	38	107	52	50	91	45	44	79	40	39	69	35	34
		27-45	123	123	123	123	123	123	123	123	123	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	96	141	136	70	141	127	60	141	105	55	140	88	49	135	76	45	131	66	41	109	55	35	91	47	45	77	41	39	66	36	34	58	48	30	52	42	27
		7-27	132	132	86	132	132	74	132	123	65	132	106	59	132	92	53	132	80	48	132	71	44	123	59	38	103	50	49	87	43	42	75	38	37	65	50	33	58	45	29
		27-45	123	123	123	123	123	123	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	100	100	100	100	100	100	78	100	100	59	100	92	51	100	73	44	100	61	38	100	54	34	91	48	45
		7-27	101	101	101	101	101	101	101	101	101	101	101	101	101	101	100	101	101	88	101	101	78	101	101	64	101	95	55	101	77	47	99	64	41	93	57	36	87	50	49
		27-45	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	100	100	100	100	100	100	100	100	84	100	100	65	100	100	59	100	100	54	100	87	49	100	67	42	100	57	36	94	49	47	81	43	41	70	38	36	62	50	32
		7-27	101	101	101	101	101	94	101	101	81	101	101	71	101	101	63	101	101	58	101	91	53	101	72	45	96	60	38	88	52	50	82	45	44	75	40	39	69	35	34
		27-45	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	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	96	100	100	70	100	100	60	100	100	55	100	88	49	100	76	45	100	66	41	100	55	35	91	47	45	77	41	39	66	36	34	58	48	30	52	42	27
		7-27	101	101	86	101	101	74	101	101	65	101	101	59	101	92	53	101	80	48	101	71	44	95	59	38	87	50	49	79	43	42	73	38	37	65	50	33	58	45	29
		27-45	110	110	110	110	110	110	110	110	110	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	70	70	70	59	70	70	51	70	70	44	70	61	38	70	54	34	70	48	45
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	49
		27-45	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	82	82	75	75	75	67	67	67	60	60	60
	C	0-7	70	70	70	70	70	70	70	70	70	70	70	65	70	70	59	70	70	54	70	70	49	70	67	42	70	57	36	70	49	47	70	43	41	67	38	36	62	50	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	50	59	45	44	56	40	39	53	35	34
		27-45	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	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	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	45	69	41	39	66	36	34	58	48	30	52	42	27
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	49	58	43	42	55	38	37	52	50	33	49	45	29
		27-45	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	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	68	68	68	59	68	68	51	68	68	44	68	61	38	68	54	34	68	48	45
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	49
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	68	68	68	65	68	68	59	68	68	54	68	68	49	68	67	42	68	57	36	68	49	47	68	43	41	65	38	36	62	50	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	50	59	45	44	56	40	39	53	35	34
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	45	69	41	39	66	36	34	58	48	30	52	42	27
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	49	58	43	42	55	38	37	52	50	33	49	45	29
		27-45	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	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	57	57	57	51	57	57	44	57	57	38	57	54	34	57	48	45
		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	60	60	60	55	59	59	47	57	57	41	55	55	36	53	50	49
		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	57	57	57	54	57	57	49	57	57	42	57	57	36	57	49	47	56	43	41	55	38	36	53	50	32
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	58	58	45	56	56	38	53	52	50	51	45	44	49	40	39	47	35	34
		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	61	61	61	60	61	61	55	61	61	49	61	61	45	61	61	41	61	55	35	61	47	45	60	41	39	58	36	34	56	48	30	52	42	27
		7-27	64	64	64	64	64	64	64	64	64	64	64	59	64	64	53	63	63	48	62	62	44	59	59	38	56	50	49	53	43	42	51	38	37	48	50	33	45	45	29
		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	46	44	46	46	46	46	38	46	46	34	46	46	45
		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	50	47	49	49	41	48	48	36	46	46	49	49	49
		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	48	48	48	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	46	46	46	42	46	46	36	46	46	47	46	43	41	46	38	36	46	50	32
		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	45	48	48	38	47	47	50	45	45	44	43	40	39	41	35	34
		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	51	51	51	49	51	51	45	51	51	41	51	51	35	51	47	45	51	41	39	50	36	34	48	48	30	47	42	27
		7-27	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	48	54	54	44	51	51	38	49	49	49	47	43	42	45	38	37	43	50	33	41	45	29
		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	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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	34	39	39	45
		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	36	41	41	49
		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	42	42	42	42	42	42
	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	39	39	39	36	39	39	47	39	39	41	39	38	36	39	50	32
		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	38	41	41	50	40	40	44	38	38	39	37	35	34
		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	42	42	42	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	43	43	43	41	43	43	35	43	43	45	43	41	39	43	36	34	43	48	30	42	42	27
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	46	46	38	44	44	49	42	42	42	40	38	37	39	50	33	37	45	29
		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	34	34	34	45
		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	36	37	37	49
		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	34	34	34	47	34	34	41	34	34	36	34	50	32
		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	50	36	36	44	35	35	39	34	34	34
		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	35	37	37	45	37	37	39	37	36	34	37	48	30	37	42	27
		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	38	40	40	49	38	38	42	37	37	37	35	50	33	34	45	29
		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	45
		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	51	51	51	51	51	51	51	51	51	51	51	51	49
		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	45	30	30	41	30	30	36	30	45	32
		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	51	51	51	49	51	51	44	51	51	39	51	51	34
		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	33	33	33	45	33	33	39	33	33	34	33	48	30	33	42	27
		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	36	36	36	49	35	35	42	34	34	37	32	49	33	31	45	29
		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	40	26	26	36	26	40	32
		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	43	46	46	39	46	46	34
		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	44	29	29	39	29	29	34	29	44	30	29	42	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	48	51	51	42	51	51	37	51	45	33	51	44	29
		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	48	48	48	48	48	48	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	36	24	36	32
		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	39	42	42	34
		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	39	26	26	34	26	40	30	26	40	27
		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	42	46	46	37	46	42	33	46	41	29
		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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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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	87	87	87	87	87	87	87	87	75	87	87	64	87	87	55	87	86	48	87	77	43	87	62	36	87	51	31	82	42	27	71	37	23	62	33	20	54	29	18
		7-27	88	88	88	88	88	81	88	88	72	88	88	64	88	88	57	88	88	51	88	79	46	88	64	39	88	54	33	88	45	29	80	39	25	69	34	22	61	31	20
		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	61	87	87	52	87	79	44	87	69	39	87	61	36	87	54	33	87	49	30	78	40	25	65	34	22	56	30	19	48	26	16	42	23	22	38	20	19
		7-27	88	88	61	88	88	54	88	82	48	88	72	43	88	64	39	88	57	35	88	52	32	87	42	27	73	36	23	63	31	20	54	27	18	47	24	23	42	21	21
		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	84	47	87	73	41	87	63	37	87	55	33	87	49	30	85	44	27	77	40	25	64	34	21	54	29	18	46	25	16	40	22	21	35	19	18	31	17	16
		7-27	88	86	50	88	75	44	88	66	39	88	58	36	88	52	32	88	47	29	86	42	27	72	36	23	61	30	19	52	26	17	45	23	22	39	20	20	35	18	18
		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	62	62	62	55	62	62	48	62	62	43	62	62	36	62	51	31	62	42	27	62	37	23	62	33	20	54	29	18
		7-27	62	62	62	62	62	62	62	62	62	62	62	62	62	62	57	62	62	51	62	62	46	62	62	39	62	54	33	62	45	29	59	39	25	55	34	22	52	31	20
		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	61	62	62	52	62	62	44	62	62	39	62	61	36	62	54	33	62	49	30	62	40	25	62	34	22	56	30	19	48	26	16	42	23	22	38	20	19
		7-27	62	62	61	62	62	54	62	62	48	62	62	43	62	62	39	62	57	35	62	52	32	61	42	27	56	36	23	52	31	20	49	27	18	45	24	23	42	21	21
		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	47	62	62	41	62	62	37	62	55	33	62	49	30	62	44	27	62	40	25	62	34	21	54	29	18	46	25	16	40	22	21	35	19	18	31	17	16
		7-27	62	62	50	62	62	44	62	62	39	62	58	36	62	52	32	62	47	29	61	42	27	56	36	23	52	30	19	47	26	17	44	23	22	39	20	20	35	18	18
		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
20	B	0-7	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	31	43	42	27	43	37	23	43	33	20	43	29	18
		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	39	43	43	33	43	43	29	41	39	25	39	34	22	38	31	20
		27-45	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	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	43	43	43	39	43	43	36	43	43	33	43	43	30	43	40	25	43	34	22	43	30	19	43	26	16	41	23	22	38	20	19
		7-27	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	42	42	27	40	36	23	38	31	20	36	27	18	34	24	23	32	21	21
		27-45	64	64	64	64	64	64	64	64	64	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	43	43	43	41	43	43	37	43	43	33	43	43	30	43	43	27	43	40	25	43	34	21	43	29	18	42	25	16	40	22	21	35	19	18	31	17	16
		7-27	43	43	43	43	43	43	43	43	39	43	43	36	43	43	32	43	43	29	42	42	27	40	36	23	37	30	19	35	26	17	33	23	22	32	20	20	30	18	18
		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	42	42	42	36	42	42	31	42	42	27	42	37	23	42	33	20	42	29	18
		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	39	43	43	33	43	43	29	41	39	25	39	34	22	38	31	20
		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	42	42	42	39	42	42	36	42	42	33	42	42	30	42	40	25	42	34	22	42	30	19	42	26	16	40	23	22	38	20	19
		7-27	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	42	42	27	40	36	23	38	31	20	36	27	18	34	24	23	32	21	21
		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	42	42	42	39	39	39	36	36	36	33	33	33
	D	0-7	43	43	43	43	43	41	43	43	37	43	43	33	43	43	30	43	43	27	43	40	25	43	34	21	43	29	18	42	25	16	40	22	21	35	19	18	31	17	16
		7-27	43	43	43	43	43	43	43	43	39	43	43	36	43	43	32	43	43	29	42	42	27	40	36	23	37	30	19	35	26	17	33	23	22	32	20	20	30	18	18
		27-45	51	51	51	51	51	51	51	51	51	51	51	51	49	49	49	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	31	35	35	27	35	35	23	35	33	20	35	29	18	35	29	18
		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	33	36	36	29	35	35	25	34	34	22	32	31	20	32	31	20
		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	35	35	35	33	35	35	30	35	35	25	35	34	22	35	30	19	34	26	16	33	23	22	32	20	19
		7-27	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	36	36	27	34	34	23	33	31	20	31	27	18	30	24	23	28	21	21
		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	37	37	37	33	37	37	30	37	37	27	37	37	25	37	34	21	37	29	18	37	25	16	35	22	21	34	19	18	31	17	16
		7-27	39	39	39	39	39	39	39	39	39	39	39	36	39	39	32	39	39	29	38	38	27	36	36	23	34	30	19	33	26	17	31	23	22	29	20	20	28	18	18
		27-45	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	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	23	28	28	20	28	28	18			
		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	29	30	30	25	29	29	22	28	28	20			
		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	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	28	28	28	25	28	28	22	28	28	19	28	26	16	28	23	22			
		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	27	30	30	23	28	28	20	27	27	18	26	24	23			
		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	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	31	31	31	30	31	31	27	31	31	25	31	31	21	31	29	18	31	25	16	30	22	21	30	19	18			
		7-27	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	33	33	27	31	31	23	30	30	19	29	26	17	27	23	22	26	20	20			
		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			

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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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			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	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	24	24	24	24
		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	25	26	26	22	25	25	20
		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
	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	22	24	24	19	24	24	16	24	23	22	24	20	19
		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	23	25	25	20	24	24	18	23	23	23	23	21	21
		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
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		7-27	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	28	28	23	27	27	19	26	26	17	25	23	22	24	20	20	23	18	18
		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	20	21	21	18
		7-27	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20
		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	21	21	21	21	21	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	16	21	21	22	21	20	19
		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	20	22	22	18	21	21	23	20	20	21
		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	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	23	23	23	21	23	23	18	23	23	16	23	22	21	23	19	18	23	17	16
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		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
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		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	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	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	22	18	18	19
		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	18	19	19	23	19	19	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
	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	20	20	20	18	20	20	16	20	20	21	20	19	18	20	17	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	19	21	21	17	20	20	22	20	20	20	19	18	18
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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	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	16	16	16	22	16	16	19
		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	23	17	17	21
		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	18	18	18	18	18	18	21	18	18	18	18	17	16
		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	17	19	19	22	18	18	20	18	18	18
		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	22	14	14	19
		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	23	16	16	21
		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	16	16	16	21	16	16	18	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	22	17	17	20	16	16	18
		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 = 1.25	18.66 sq.ft	LANDSCAPE	CROSS-SLOPE	SM	UAF	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	144	144	144	144	144	144	144	144	144	144	144	142	144	144	135	144	144	113	144	139	82	144	128	61	142	96	52	135	75	45	124	62	39	107	55	35	94	49	31
		7-27	145	145	143	145	145	137	145	145	132	145	145	117	145	145	103	145	142	91	145	137	81	145	124	65	145	98	56	140	80	48	134	66	42	122	58	37	106	51	33
		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	132	144	141	89	144	135	68	144	127	60	144	106	55	141	91	50	132	69	43	114	58	36	97	50	32	83	44	28	72	39	37	63	34	33
		7-27	145	145	112	145	145	96	145	139	84	145	134	73	145	123	65	145	107	59	145	94	54	138	74	46	129	61	39	109	53	34	94	46	30	81	41	26	71	36	35
		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	105	144	137	74	144	131	62	144	109	56	141	92	51	136	78	46	132	68	42	111	57	36	93	48	31	79	42	27	68	37	35	60	32	31	53	29	27
		7-27	145	142	89	145	135	77	145	127	67	145	109	60	145	94	54	142	83	50	137	73	45	126	60	38	105	51	33	89	44	29	77	39	38	67	34	33	59	30	30
		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	102	102	102	82	102	102	61	102	96	52	102	75	45	102	62	39	102	55	35	94	49	31
		7-27	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	91	103	103	81	103	103	65	103	98	56	103	80	48	102	66	42	96	58	37	89	51	33
		27-45	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	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	102	102	102	89	102	102	68	102	102	60	102	102	55	102	91	50	102	69	43	102	58	36	97	50	32	83	44	28	72	39	37	63	34	33
		7-27	103	103	103	103	103	96	103	103	84	103	103	73	103	103	65	103	103	59	103	94	54	103	74	46	98	61	39	91	53	34	84	46	30	77	41	26	71	36	35
		27-45	143	143	143	143	143	143	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	102	102	102	74	102	102	62	102	102	56	102	92	51	102	78	46	102	68	42	102	57	36	93	48	31	79	42	27	68	37	35	60	32	31	53	29	27
		7-27	103	103	89	103	103	77	103	103	67	103	103	60	103	94	54	103	83	50	103	73	45	97	60	38	89	51	33	82	44	29	75	39	38	67	34	33	59	30	30
		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	72	72	72	61	72	72	52	72	72	45	72	62	39	72	55	35	72	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		27-45	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	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	72	72	72	68	72	72	60	72	72	55	72	72	50	72	69	43	72	58	36	72	50	32	72	44	28	69	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	60	46	30	57	41	26	54	36	35
		27-45	105	105	105	105	105	105	105	105	105	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	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	27	68	37	35	60	32	31	53	29	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	29	56	39	38	53	34	33	50	30	30
		27-45	112	112	112	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	70	70	70	61	70	70	52	70	70	45	70	62	39	70	55	35	70	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		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	73	73	73	68	68	68	63	63	63	58	58	58			
	C	0-7	70	70	70	70	70	70	70	70	70	70	70	68	70	70	60	70	70	55	70	70	50	70	69	43	70	58	36	70	50	32	70	44	28	67	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	60	46	30	57	41	26	54	36	35
		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	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	27	68	37	35	60	32	31	53	29	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	29	56	39	38	53	34	33	50	30	30
		27-45	84	84	84	84	84	84	84	84	84	84	84	84	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	52	58	58	45	58	58	39	58	55	35	58	49	31			
		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	56	60	60	48	58	58	42	56	56	37	54	51	33			
		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	58	58	58	55	58	58	50	58	58	43	58	58	36	58	50	32	58	44	28	56	39	37	54	34	33
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	59	59	46	57	57	39	55	53	34	52	46	30	50	41	26	48	36	35
		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	62	62	62	56	62	62	51	62	62	46	62	62	42	62	57	36	62	48	31	61	42	27	59	37	35	57	32	31	53	29	27
		7-27	66	66	66	66	66	66	66	66	66	66	66	60	66	66	54	65	65	50	63	63	45	60	60	38	57	51	33	55	44	29	52	39	38	49	34	33	47	30	30
		27-45	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	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	45	47	47	39	47	47	35	47	47	31			
		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	48	50	50	42	49	49	37	47	47	33			
		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	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	43	47	47	36	47	47	32	47	44	28	47	39	37	47	34	33			
		7-27	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	46	49	49	39	48	48	34	46	46	30	44	41	26	42	36	35			
		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	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	52	52	52	51	52	52	46	52	52	42	52	52	36	52	48	31	52	42	27	51	37	35	49	32	31	48	29	27
		7-27	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	56	56	50	55	55	45	53	53	38	50	50	33	48	44	29	46	39	38	44	34	33	42	30	30
		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	UAF	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	35	40	40	31
		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	42	43	43	37	42	42	33
		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
	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	40	40	40	36	40	40	32	40	40	28	40	39	37	40	34	33
		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	39	42	42	34	41	41	30	39	39	26	38	36	35
		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	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	44	44	44	42	44	44	36	44	44	31	44	42	27	44	37	35	44	32	31	42	29	27
		7-27	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	47	47	38	45	45	33	43	43	29	41	39	38	40	34	33	38	30	30
		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	35	35	35	31
		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	37	37	37	33
		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	35	35	35	32	35	35	28	35	35	37	35	34	33
		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	34	37	37	30	36	36	26	34	34	35
		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	36	38	38	31	38	38	27	38	37	35	38	32	31	38	29	27
		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	38	40	40	33	39	39	29	38	38	38	36	34	33	35	30	30
		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	39	39	39	36	36	36	34	34	34	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	30
		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	33
		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	33	33	33
	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	30	30	30	28	30	30	37	30	30	33
		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	30	32	32	26	31	31	35
		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	33	33	33
	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	34	34	34	31	34	34	27	34	34	35	34	32	31	34	29	27
		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	36	36	36	33	36	36	29	34	34	38	33	33	33	32	30	30
		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	27	27	27	37	27	27	33
		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	26	29	29	35
		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	30	30	30	30	30	30	35	30	30	31	30	29	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	29	32	32	38	31	31	33	30	30	30
		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	37	24	24	33
		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	26	27	27	35
		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	27	27	27	35	27	27	31	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	38	29	29	33	28	28	30
		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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UNIRAC

ASCE 7-10	II	30 ft	Ss = 1.25	22.78 sq.ft	PORTRAIT	CROSS-SLOPE	SM	UAF	Solarhooks CT2
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	73	73	73	73	73	73	73	73	62	73	73	53	73	73	46	73	72	40	73	64	36	73	51	30	73	42	26	69	35	22	59	31	19	52	27	17	45	24	23
		7-27	73	73	73	73	73	68	73	73	60	73	73	53	73	73	48	73	73	43	73	66	39	73	54	32	73	45	28	73	38	24	67	33	21	58	29	18	51	25	16
		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	51	73	73	43	73	66	37	73	58	33	73	51	30	73	46	27	73	41	25	65	34	21	55	29	18	47	25	16	40	22	21	35	19	18	31	17	16
		7-27	73	73	51	73	73	45	73	68	40	73	60	36	73	54	32	73	48	29	73	43	27	73	35	23	61	30	19	52	26	17	45	23	22	40	20	20	35	18	17
		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	70	39	73	61	34	73	53	31	73	46	28	73	41	25	71	37	23	64	33	21	53	28	18	45	24	23	39	21	20	34	18	17	30	16	15	26	21	14
		7-27	73	72	42	73	63	37	73	55	33	73	49	30	73	43	27	73	39	25	72	35	22	60	30	19	51	25	16	43	22	21	38	19	19	33	17	16	29	23	15
		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	52	52	52	46	52	52	40	52	52	36	52	51	30	52	42	26	52	35	22	52	31	19	52	27	17	45	24	23
		7-27	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	43	52	52	39	52	52	32	52	45	28	52	38	24	49	33	21	46	29	18	43	25	16
		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	51	52	52	43	52	52	37	52	52	33	52	51	30	52	46	27	52	41	25	52	34	21	52	29	18	47	25	16	40	22	21	35	19	18	31	17	16
		7-27	52	52	51	52	52	45	52	52	40	52	52	36	52	52	32	52	48	29	52	43	27	51	35	23	47	30	19	44	26	17	41	23	22	38	20	20	35	18	17
		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	39	52	52	34	52	52	31	52	46	28	52	41	25	52	37	23	52	33	21	52	28	18	45	24	23	39	21	20	34	18	17	30	16	15	26	21	14
		7-27	52	52	42	52	52	37	52	52	33	52	49	30	52	43	27	52	39	25	51	35	22	47	30	19	43	25	16	40	22	21	37	19	19	33	17	16	29	23	15
		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	36	36	36	36	36	36	30	36	36	26	36	35	22	36	31	19	36	27	17	36	24	23
		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	32	36	36	28	36	36	24	34	33	21	33	29	18	31	25	16
		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	36	36	36	33	36	36	30	36	36	27	36	36	25	36	34	21	36	29	18	36	25	16	36	22	21	34	19	18	31	17	16
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	35	35	23	33	30	19	32	26	17	30	23	22	29	20	20	27	18	17
		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	36	36	36	34	36	36	31	36	36	28	36	36	25	36	36	23	36	33	21	36	28	18	36	24	23	35	21	20	34	18	17	30	16	15	26	21	14
		7-27	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	36	25	35	35	22	33	30	19	31	25	16	30	22	21	28	19	19	26	17	16	25	23	15
		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	35	35	35	30	35	35	26	35	35	22	35	31	19	35	27	17	35	24	23
		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	32	36	36	28	36	36	24	34	33	21	33	29	18	31	25	16
		27-45	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	37	37	34	34	34	31	31	31	29	29	29
	C	0-7	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	34	21	35	29	18	35	25	16	35	22	21	33	19	18	31	17	16
		7-27	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	35	35	23	33	30	19	32	26	17	30	23	22	29	20	20	27	18	17
		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	32	32	32	30	30	30	27	27	27	25	25	25	22	22	22
	D	0-7	36	36	36	36	36	34	36	36	31	36	36	28	36	36	25	36	36	23	36	33	21	36	28	18	36	24	23	35	21	20	34	18	17	30	16	15	26	21	14
		7-27	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	36	25	35	35	22	33	30	19	31	25	16	30	22	21	28	19	19	26	17	16	25	23	15
		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
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		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	28	30	30	24	29	29	21	28	28	18	27	25	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	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	29	29	29	27	29	29	25	29	29	21	29	29	18	29	25	16	29	22	21	28	19	18	27	17	16
		7-27	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	30	30	23	29	29	19	27	26	17	26	23	22	25	20	20	24	18	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	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	31	31	31	28	31	31	25	31	31	23	31	31	21	31	28	18	31	24	23	31	21	20	30	18	17	28	16	15	26	21	14
		7-27	33	33	33	33	33	33	33	33	33	33	33	30	33	33	27	33	33	25	32	32	22	30	30	19	29	25	16	27	22	21	26	19	19	24	17	16	23	23	15
		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	24	24	24	22	24	24	19	24	24	17	24	24	23
		7-27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	25	25	21	24	24	18	24	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	26	26	26	26	26	26	26	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	24	24	24	21	24	24	18	24	24	16	24	22	21	24	19	18	23	17	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	23	25	25	19	24	24	17	23	23	22	22	20	20	21	18	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	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	26	26	26	25	26	26	23	26	26	21	26	26	18	26	24	23	26	21	20	25	18	17	25	16	15	24	21	14
		7-27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	27	27	22	26	26	19	25	25	16	24	22	21	23	19	19	22	17	16	21	23	15
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

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

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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	134	141	141	103	141	138	78	141	123	59	141	92	51	134	73	44	121	61	38	105	54	34	91	48	30
		7-27	141	141	141	141	141	136	141	141	131	141	141	114	141	141	100	141	141	88	141	136	78	141	120	64	141	95	55	139	77	47	133	64	41	119	57	36	103	50	32
		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	131	141	140	84	141	134	65	141	122	59	141	102	54	140	87	49	131	67	42	111	57	36	94	49	31	81	43	41	70	38	36	62	33	32
		7-27	141	141	109	141	141	94	141	138	81	141	132	71	141	119	63	141	103	58	141	91	53	137	72	45	126	60	38	107	52	33	91	45	44	79	40	39	69	35	34
		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	96	141	136	70	141	127	60	141	105	55	140	88	49	135	76	45	131	66	41	109	55	35	91	47	30	77	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	141	140	86	141	134	74	141	123	65	141	106	59	141	92	53	141	80	48	136	71	44	123	59	38	103	50	32	87	43	42	75	38	37	65	33	33	58	45	~~29~~
		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
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		7-27	101	101	101	101	101	101	101	101	101	101	101	101	101	101	100	101	101	88	101	101	78	101	101	64	101	95	55	101	77	47	99	64	41	93	57	36	87	50	32
		27-45	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	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	100	100	100	84	100	100	65	100	100	59	100	100	54	100	87	49	100	67	42	100	57	36	94	49	31	81	43	41	70	38	36	62	33	32
		7-27	101	101	101	101	101	94	101	101	81	101	101	71	101	101	63	101	101	58	101	91	53	101	72	45	96	60	38	88	52	33	82	45	44	75	40	39	69	35	34
		27-45	140	140	140	140	140	140	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	96	100	100	70	100	100	60	100	100	55	100	88	49	100	76	45	100	66	41	100	55	35	91	47	30	77	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	101	101	86	101	101	74	101	101	65	101	101	59	101	92	53	101	80	48	101	71	44	95	59	38	87	50	32	79	43	42	73	38	37	65	33	33	58	45	~~29~~
		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	70	70	70	59	70	70	51	70	70	44	70	61	38	70	54	34	70	48	30
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	32
		27-45	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	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	70	70	70	65	70	70	59	70	70	54	70	70	49	70	67	42	70	57	36	70	49	31	70	43	41	67	38	36	62	33	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	33	59	45	44	56	40	39	53	35	34
		27-45	103	103	103	103	103	103	103	103	103	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	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	30	69	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	32	58	43	42	55	38	37	52	33	33	49	45	~~29~~
		27-45	110	110	110	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	68	68	68	59	68	68	51	68	68	44	68	61	38	68	54	34	68	48	30
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	32
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	72	72	72	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	68	68	68	65	68	68	59	68	68	54	68	68	49	68	67	42	68	57	36	68	49	31	68	43	41	65	38	36	62	33	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	33	59	45	44	56	40	39	53	35	34
		27-45	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	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	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	30	69	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	32	58	43	42	55	38	37	52	33	33	49	45	~~29~~
		27-45	82	82	82	82	82	82	82	82	82	82	82	82	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	57	57	57	51	57	57	44	57	57	38	57	54	34	57	48	30
		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	60	60	60	55	59	59	47	57	57	41	55	55	36	53	50	32
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	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	57	57	57	54	57	57	49	57	57	42	57	57	36	57	49	31	56	43	41	55	38	36	53	33	32
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	58	58	45	56	56	38	53	52	33	51	45	44	49	40	39	47	35	34
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	58	58	53	53	53	49	49	49	46	46	46	42	42	42
	D	0-7	61	61	61	61	61	61	61	61	60	61	61	55	61	61	49	61	61	45	61	61	41	61	55	35	61	47	30	60	41	39	58	36	34	56	32	30	52	42	~~27~~
		7-27	64	64	64	64	64	64	64	64	64	64	64	59	64	64	53	63	63	48	62	62	44	59	59	38	56	50	32	53	43	42	51	38	37	48	33	33	45	45	~~29~~
		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	46	46	46	44	46	46	38	46	46	34	46	46	30
		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	50	50	50	47	49	49	41	48	48	36	46	46	32
		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	46	46	46	42	46	46	36	46	46	31	46	43	41	46	38	36	46	33	32
		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	45	48	48	38	47	47	33	45	45	44	43	40	39	41	35	34
		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	51	51	51	49	51	51	45	51	51	41	51	51	35	51	47	30	51	41	39	50	36	34	48	32	30	47	42	~~27~~
		7-27	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	48	54	54	44	51	51	38	49	49	32	47	43	42	45	38	37	43	33	33	41	45	~~29~~
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	34	39	39	30
		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	41	42	42	36	41	41	32
		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	42	42	42	42	42	42	42	42	42
	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	39	39	39	36	39	39	31	39	39	41	39	38	36	39	33	32
		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	44	38	38	39	37	35	34
		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	42	42	42	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	43	43	43	41	43	43	35	43	43	30	43	41	39	43	36	34	43	32	30	42	42	27
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	46	46	38	44	44	32	42	42	42	40	38	37	39	33	33	37	45	29
		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	34	34	34	30
		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	36	37	37	32
		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	31	34	34	41	34	34	36	34	33	32	34	34	32
		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	33	36	36	44	35	35	39	34	34	34	35	35	35
		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	35	35	35	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	35	37	37	30	37	37	39	37	36	34	37	32	30	37	42	27
		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	38	40	40	32	38	38	42	37	37	37	35	33	33	34	45	29
		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	30
		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	32
		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	30	30	30	41	30	30	36	30	30	32
		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	44	32	32	39	31	31	34
		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	33	33	33	30	33	33	39	33	33	34	33	32	30	33	42	27
		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	36	36	36	32	35	35	42	34	34	37	32	32	33	31	45	29
		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	46
		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	40	26	26	36	26	26	32
		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	43	46	46	39	46	46	34
		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	29	29	29	39	29	29	34	29	29	30	29	42	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	42	31	31	37	30	30	33	29	45	29
		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	48	48	48	48	48	48	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	36	24	24	32
		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	39	42	42	34
		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	39	26	26	34	26	26	30	26	40	27
		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	42	46	46	37	46	46	33	46	45	29
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	87	87	87	87	87	87	87	87	75	87	87	64	87	87	55	87	86	48	87	77	43	87	62	36	87	51	31	82	42	27	71	37	23	62	33	20	54	29	18
		7-27	86	86	86	86	86	81	86	86	72	86	86	64	86	86	57	86	86	51	86	79	46	86	64	39	86	54	33	86	45	29	80	39	25	69	34	22	61	31	20
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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 = 3.00	18.66 sq.ft	PORTRAIT	CROSS-SLOPE	SM	UAF	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
		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	25	26	26	22	25	25	20
		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
	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	22	24	24	19	24	24	16	24	23	22	24	20	19
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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	20	21	21	18
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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	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	22	14	14	19
		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	23	16	16	21
		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	16	16	16	21	16	16	18	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	22	17	17	20	16	16	18
		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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	144	144	144	144	144	144	144	144	144	144	144	142	144	144	135	144	144	113	144	139	82	144	128	61	142	96	52	135	75	45	124	62	39	107	55	35	94	49	31
		7-27	136	136	136	136	136	136	136	136	132	136	136	117	136	136	103	136	136	91	136	136	81	136	124	65	136	98	56	136	80	48	134	66	42	122	58	37	106	51	33
		27-45	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	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	132	144	141	89	144	135	68	144	127	60	144	106	55	141	91	50	132	69	43	114	58	36	97	50	32	83	44	28	72	39	37	63	34	33
		7-27	136	136	112	136	136	96	136	136	84	136	134	73	136	123	65	136	107	59	136	94	54	136	74	46	129	61	39	109	53	34	94	46	30	81	41	26	71	36	35
		27-45	126	126	126	126	126	126	126	126	126	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	105	144	137	74	144	131	62	144	109	56	141	92	51	136	78	46	132	68	42	111	57	36	93	48	31	79	42	27	68	37	35	60	32	31	53	29	27
		7-27	136	136	89	136	135	77	136	127	67	136	109	60	136	94	54	136	83	50	136	73	45	126	60	38	105	51	33	89	44	29	77	39	38	67	34	33	59	30	30
		27-45	126	126	126	126	126	126	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	102	102	102	82	102	102	61	102	96	52	102	75	45	102	62	39	102	55	35	94	49	31
		7-27	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	91	103	103	81	103	103	65	103	98	56	103	80	48	102	66	42	96	58	37	89	51	33
		27-45	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	101	101	101	88	88	88	78	78	78	69	69	69	62	62	62
	C	0-7	102	102	102	102	102	102	102	102	89	102	102	68	102	102	60	102	102	55	102	91	50	102	69	43	102	58	36	97	50	32	83	44	28	72	39	37	63	34	33
		7-27	103	103	103	103	103	96	103	103	84	103	103	73	103	103	65	103	103	59	103	94	54	103	74	46	98	61	39	91	53	34	84	46	30	77	41	26	71	36	35
		27-45	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	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	102	102	102	74	102	102	62	102	102	56	102	92	51	102	78	46	102	68	42	102	57	36	93	48	31	79	42	27	68	37	35	60	32	31	53	29	27
		7-27	103	103	89	103	103	77	103	103	67	103	103	60	103	94	54	103	83	50	103	73	45	97	60	38	89	51	33	82	44	29	75	39	38	67	34	33	59	30	30
		27-45	113	113	113	113	113	113	113	113	113	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	72	72	72	61	72	72	52	72	72	45	72	62	39	72	55	35	72	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84	84	84	76	76	76	69	69	69	62	62	62
	C	0-7	72	72	72	72	72	72	72	72	72	72	72	68	72	72	60	72	72	55	72	72	50	72	69	43	72	58	36	72	50	32	72	44	28	69	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	60	46	30	57	41	26	54	36	35
		27-45	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	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	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	27	68	37	35	60	32	31	53	29	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	29	56	39	38	53	34	33	50	30	30
		27-45	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	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	70	70	70	61	70	70	52	70	70	45	70	62	39	70	55	35	70	49	31
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	56	72	72	48	69	66	42	65	58	37	63	51	33
		27-45	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	68	68	68	63	63	63	58	58	58
	C	0-7	70	70	70	70	70	70	70	70	70	70	70	68	70	70	60	70	70	55	70	70	50	70	69	43	70	58	36	70	50	32	70	44	28	67	39	37	63	34	33
		7-27	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	71	71	46	67	61	39	63	53	34	60	46	30	57	41	26	54	36	35
		27-45	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	65	65	65	60	60	60	55	55	55	50	50	50	45	45	45
	D	0-7	72	72	72	72	72	72	72	72	62	72	72	56	72	72	51	72	72	46	72	68	42	72	57	36	72	48	31	71	42	27	68	37	35	60	32	31	53	29	27
		7-27	72	72	72	72	72	72	72	72	67	72	72	60	72	72	54	72	72	50	70	70	45	66	60	38	63	51	33	59	44	29	56	39	38	53	34	33	50	30	30
		27-45	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	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	52	58	58	45	58	58	39	58	55	35	58	49	31
		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	56	60	60	48	58	58	42	56	56	37	54	51	33
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	57	57	54	54	54
	C	0-7	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	50	58	58	43	58	58	36	58	50	32	58	44	28	56	39	37	54	34	33
		7-27	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	59	59	46	57	57	39	55	53	34	52	46	30	50	41	26	48	36	35
		27-45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	59	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	62	62	62	56	62	62	51	62	62	46	62	62	42	62	57	36	62	48	31	61	42	27	59	37	35	57	32	31	53	29	27
		7-27	66	66	66	66	66	66	66	66	66	66	66	60	66	66	54	65	65	50	63	63	45	60	60	38	57	51	33	55	44	29	52	39	38	49	34	33	47	30	30
		27-45	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	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	47	47	47	45	47	47	39	47	47	35	47	47	31
		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	51	51	51	48	50	50	42	49	49	37	47	47	33
		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	47	47	47	43	47	47	36	47	47	32	47	44	28	47	39	37	54	34	33
		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	46	49	49	39	48	48	34	46	46	30	44	41	26	42	36	35
		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	50	50	50	47	47	47	47	47	47	43	43	43	40	40	40
	D	0-7	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	52	52	46	52	52	42	52	52	36	52	48	31	52	42	27	51	37	35	49	32	31	48	29	27
		7-27	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	56	56	50	55	55	45	53	53	38	50	50	33	48	44	29	46	39	38	44	34	33	42	30	30
		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.

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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
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	39	40	40	35	40	40	31
		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	42	43	43	37	42	42	33
		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
	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	40	40	40	36	40	40	32	40	40	28	40	39	37	40	34	33
		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	41	41	30	39	39	26	38	36	35
		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	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	44	44	44	42	44	44	36	44	44	31	44	42	27	44	37	35	44	32	31	42	29	27
		7-27	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	45	47	47	38	45	45	33	43	43	29	41	39	38	40	34	33	38	30	30
		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	35	35	35	31
		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	37	37	37	33
		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	35	35	35	32	35	35	28	35	35	37	35	34	33
		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	34	37	37	30	36	36	26	34	34	35
		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	36	38	38	31	38	38	27	38	37	35	38	32	31	38	29	27
		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	38	40	40	33	39	39	29	38	38	38	36	34	33	35	30	30
		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	39	39	39	36	36	36	34	34	34	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	30
		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	33
		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	33	33	33
	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	30	30	30	28	30	30	37	30	30	33
		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	30	32	32	26	31	31	35
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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	37	37	37	37	37	37	37	34	34	34	32	32	32	32	32
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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
	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	27	27	27	37	27	27	33
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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	30	30	30	30	30	30	35	30	30	31	30	29	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	29	32	32	38	31	31	33	30	30	30
		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	37	24	24	33
		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	26	27	27	35
		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	27	27	27	35	27	27	31	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	38	29	29	33	28	28	30
		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 CT2
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)

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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
0	B	0-7	73	73	73	73	73	73	73	73	62	73	73	53	73	73	46	73	72	40	73	64	36	73	51	30	73	42	26	69	35	22	59	31	19	52	27	17	45	24	23
		7-27	73	73	73	73	73	68	73	73	60	73	73	53	73	73	48	73	73	43	73	66	39	73	54	32	73	45	28	73	38	24	67	33	21	58	29	18	51	25	16
		27-45	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	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	51	73	73	43	73	66	37	73	58	33	73	51	30	73	46	27	73	41	25	65	34	21	55	29	18	47	25	16	40	22	21	35	19	18	31	17	16
		7-27	73	73	51	73	73	45	73	68	40	73	60	36	73	54	32	73	48	29	73	43	27	73	35	23	61	30	19	52	26	17	45	23	22	40	20	20	35	18	17
		27-45	67	67	67	67	67	67	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	70	39	73	61	34	73	53	31	73	46	28	73	41	25	71	37	23	64	33	21	53	28	18	45	24	23	39	21	20	34	18	17	30	16	15	26	21	14
		7-27	73	72	42	73	63	37	73	55	33	73	49	30	73	43	27	73	39	25	72	35	22	60	30	19	51	25	16	43	22	21	38	19	19	33	17	16	29	23	15
		27-45	67	67	67	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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	C	0-7	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	34	21	35	29	18	35	25	16	35	22	21	33	19	18	31	17	16
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		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	24	25	25	21	24	24	18	24	24	16
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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	24	24	24	21	24	24	18	24	24	16	24	22	21	24	19	18	23	17	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	23	25	25	19	24	24	17	23	23	22	22	20	20	21	18	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	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	26	26	26	25	26	26	23	26	26	21	26	26	18	26	24	23	26	21	20	25	18	17	25	16	15	24	21	14
		7-27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	27	27	22	26	26	19	25	25	16	24	22	21	23	19	19	22	17	16	21	23	15
		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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UNIRAC

ASCE 7-10	II	30 ft	Ss = 3.00	22.78 sq.ft	PORTRAIT	CROSS-SLOPE	SM	UAF	Solarhooks CT2
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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
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	19	20	20	17	20	20	23
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	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	20	20	20	18	20	20	16	20	20	21	20	19	18	20	17	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	18	19	19	16
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		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	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	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	15	15	15	21	15	15	18	15	15	16
		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	22	16	16	20	16	16	17
		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
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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	24
		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	13	13	13	13	13	13	13	13	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
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		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
	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	23	15	15	20	15	15	17	15	15	15	15	21	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	21	16	16	19	15	15	16	15	22	15
		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
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		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	20	21	21	20	21	21	20	21	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
	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	20	13	13	17	13	13	15	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	21	24	24	19	24	24	16	24	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

* 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 CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	141	141	141	141	141	141	141	141	141	141	141	141	141	141	134	141	141	103	141	138	78	141	123	59	141	92	51	134	73	44	121	61	38	105	54	34	91	48	30
		7-27	132	132	132	132	132	132	132	132	131	132	132	114	132	132	100	132	132	88	132	132	78	132	120	64	132	95	55	132	77	47	132	64	41	119	57	36	103	50	32
		27-45	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	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	131	141	140	84	141	134	65	141	122	59	141	102	54	140	87	49	131	67	42	111	57	36	94	49	31	81	43	41	70	38	36	62	33	32
		7-27	132	132	109	132	132	94	132	132	81	132	132	71	132	119	63	132	103	58	132	91	53	132	72	45	126	60	38	107	52	33	91	45	44	79	40	39	69	35	34
		27-45	123	123	123	123	123	123	123	123	123	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	96	141	136	70	141	127	60	141	105	55	140	88	49	135	76	45	131	66	41	109	55	35	91	47	30	77	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	132	132	86	132	132	74	132	123	65	132	106	59	132	92	53	132	80	48	132	71	44	123	59	38	103	50	32	87	43	42	75	38	37	65	33	33	58	45	~~29~~
		27-45	123	123	123	123	123	123	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	100	100	100	100	100	100	78	100	100	59	100	92	51	100	73	44	100	61	38	100	54	34	91	48	30
		7-27	101	101	101	101	101	101	101	101	101	101	101	101	101	101	100	101	101	88	101	101	78	101	101	64	101	95	55	101	77	47	99	64	41	93	57	36	87	50	32
		27-45	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	98	98	98	86	86	86	76	76	76	67	67	67	60	60	60
	C	0-7	100	100	100	100	100	100	100	100	84	100	100	65	100	100	59	100	100	54	100	87	49	100	67	42	100	57	36	94	49	31	81	43	41	70	38	36	62	33	32
		7-27	101	101	101	101	101	94	101	101	81	101	101	71	101	101	63	101	101	58	101	91	53	101	72	45	96	60	38	88	52	33	82	45	44	75	40	39	69	35	34
		27-45	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	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	96	100	100	70	100	100	60	100	100	55	100	88	49	100	76	45	100	66	41	100	55	35	91	47	30	77	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	101	101	86	101	101	74	101	101	65	101	101	59	101	92	53	101	80	48	101	71	44	95	59	38	87	50	32	79	43	42	73	38	37	65	33	33	58	45	~~29~~
		27-45	110	110	110	110	110	110	110	110	110	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	70	70	70	59	70	70	51	70	70	44	70	61	38	70	54	34	70	48	30
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	32
		27-45	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	82	82	82	75	75	75	67	67	67	60	60	60
	C	0-7	70	70	70	70	70	70	70	70	70	70	70	65	70	70	59	70	70	54	70	70	49	70	67	42	70	57	36	70	49	31	70	43	41	67	38	36	62	33	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	33	59	45	44	56	40	39	53	35	34
		27-45	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	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	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	30	69	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	32	58	43	42	55	38	37	52	33	33	49	45	~~29~~
		27-45	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	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	68	68	68	59	68	68	51	68	68	44	68	61	38	68	54	34	68	48	30
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	55	70	70	47	67	64	41	64	57	36	61	50	32
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	66	66	66	62	62	62	57	57	57
	C	0-7	68	68	68	68	68	68	68	68	68	68	68	65	68	68	59	68	68	54	68	68	49	68	67	42	68	57	36	68	49	31	68	43	41	65	38	36	62	33	32
		7-27	71	71	71	71	71	71	71	71	71	71	71	71	71	71	63	71	71	58	71	71	53	69	69	45	65	60	38	62	52	33	59	45	44	56	40	39	53	35	34
		27-45	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	63	63	63	58	58	58	53	53	53	49	49	49	44	44	44
	D	0-7	70	70	70	70	70	70	70	70	60	70	70	55	70	70	49	70	70	45	70	66	41	70	55	35	70	47	30	69	41	39	66	36	34	58	32	30	52	42	~~27~~
		7-27	71	71	71	71	71	71	71	71	65	71	71	59	71	71	53	71	71	48	69	69	44	65	59	38	61	50	32	58	43	42	55	38	37	52	33	33	49	45	~~29~~
		27-45	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	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	51	57	57	44	57	57	38	57	54	34	57	48	30
		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	55	59	59	47	57	57	41	55	55	36	53	50	32
		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	56	56	56	52	52	52
	C	0-7	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	57	57	42	57	57	36	57	49	31	56	43	41	55	38	36	53	33	32
		7-27	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	58	58	45	56	56	38	53	52	33	51	45	44	49	40	39	47	35	34
		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	61	61	61	60	61	61	55	61	61	49	61	61	45	61	61	41	61	55	35	61	47	30	60	41	39	58	36	34	56	32	30	52	42	~~27~~
		7-27	64	64	64	64	64	64	64	64	64	64	64	59	64	64	53	63	63	48	62	62	44	59	59	38	56	50	32	53	43	42	51	38	37	48	33	33	45	45	~~29~~
		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	44	46	46	38	46	46	34	46	46	30
		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	50	50	50	47	49	49	41	48	48	36	46	46	32
		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	48	48	48	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	46	46	46	42	46	46	36	46	46	31	46	43	41	46	38	36	46	33	32
		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	45	48	48	38	47	47	33	45	45	44	43	40	39	41	35	34
		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	51	51	51	49	51	51	45	51	51	41	51	51	35	51	47	30	51	41	39	50	36	34	48	32	30	47	42	~~27~~
		7-27	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	48	54	54	44	51	51	38	49	49	32	47	43	42	45	38	37	43	33	33	41	45	~~29~~
		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	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.

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ASCE 7-10	II	30 ft	Ss = 3.00	22.78 sq.ft	LANDSCAPE	CROSS-SLOPE	SM	UAF	Solarhooks CT2
Design Standard	Risk Category	Roof Height	Seismic	Module Area	Orientation	Rail Direction	Rail Type	Clamp	Attachment

SPAN TABLES

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

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																		
			90			95			100			105			110			115			120			130			140			150			160			170			180		
			Roof Wind Zone																																				
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	34	39	39	30
		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	36	41	41	32
		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	42	42	42	42	42	42
	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	39	39	39	36	39	39	31	39	39	41	39	38	36	39	33	32
		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	41	41	33	40	40	44	38	38	39	37	35	34
		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	42	42	42	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	43	43	43	41	43	43	35	43	43	30	43	41	39	43	36	34	43	32	30	42	42	27
		7-27	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	46	46	38	44	44	32	42	42	42	40	38	37	39	33	33	37	45	29
		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	34	34	34	30
		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	36	37	37	32
		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	34	34	34	31	34	34	41	34	34	36	34	33	32
		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	33	36	36	44	35	35	39	34	34	34
		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	35	37	37	30	37	37	39	37	36	34	37	32	30	37	42	27
		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	38	40	40	32	38	38	42	37	37	37	35	33	33	34	45	29
		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	30
		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	32
		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	30	30	30	41	30	30	36	30	30	32
		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	44	32	32	39	31	31	34
		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	33	33	33	30	33	33	39	33	33	34	33	32	30	33	42	27
		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	36	36	36	32	35	35	42	34	34	37	32	32	33	31	45	29
		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	46
		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	40	26	26	36	26	26	32
		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	43	46	46	39	46	46	34
		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	29	29	29	39	29	29	34	29	29	30	29	42	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	42	31	31	37	30	30	33	29	45	29
		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	48	48	48	48	48	48	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	36	24	24	32
		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	39	42	42	34
		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	39	26	26	34	26	26	30	26	40	27
		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	42	46	46	37	46	46	33	46	45	29
		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.