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 7-16 Sec 29.4.4 with Provisions from SEAOC PV2-2017
- Exposure Category B, C, or D
- Basic Wind Speed = 90 – 180 mph
- Level terrain. Topographic factor, kzt = 1.0
- γE = 1.0 for 'Interior' spans, γE = 1.5 for 'Exposed' spans (ASCE 7-16, Fig. 29.4-7)

Snow Design Assumptions

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

Seismic Design Assumptions

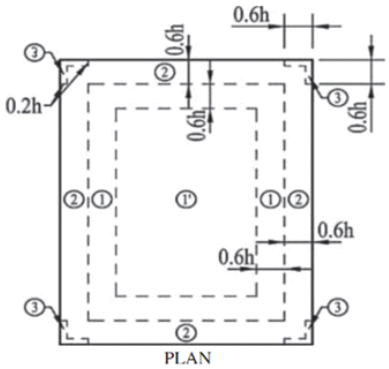
- 0.2-s Spectral Response Acceleration, SS ≤ 3
- S_S = 1.25 and 3 per criteria shown on individual span tables sheets.
- S_1 = 0.5
- Seismic site class D

Array Assumptions

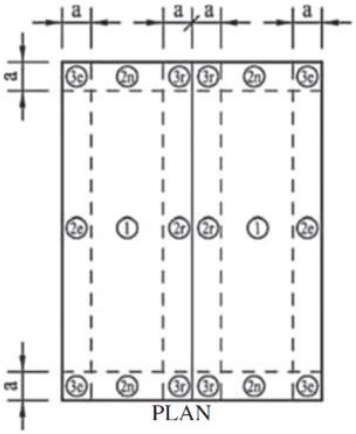
- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1" x 67" (~19 sq.ft, 47.65 lbs) and 41" x 80" (~23 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at 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.
- 'Exposed' spans as defined in ASCE 7-16 sec. 29.4.4 shall be used when any part of an exposed module or panel as is attributed to that span.

Span Tables

Zone should be considered as per ASCE 7-16, Fig. 30.3-2A to 30.3-2D



Gable Roofs θ ≤ 7°

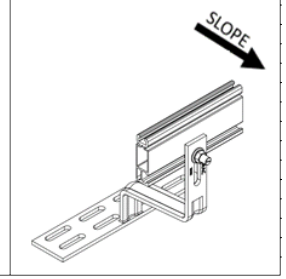


Gable Roofs 7°< θ ≤ 45°

Grouping of ASCE 7-16 Roof Zones (Gable and Flat)

- **Roof Tilt 0°-7°**
  - Roof Zone 1 = 1
  - Roof Zone 2 = 2
  - Roof Zone 3 = 3
- **Roof Tilt 7°-27°**
  - Roof Zone 1 = 1, 2e
  - Roof Zone 2 = 2n, 2r, 3e
  - Roof Zone 3 = 3r
- **Roof Tilt 27°-45°**
  - Roof Zone 1 = 1, 2e, 2r
  - Roof Zone 2 = 2n, 3r
  - Roof Zone 3 = 3e

Rails can be installed in these possible orientations.

	*CT2
Y+	Alternate orientation not allowed
Y-	

UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	73	87	87	63	87	81	48	87	64	40	84	51	34	68	42	30	56	37	26	47	33	23
			Exposed	87	87	86	87	87	70	87	87	59	87	84	50	87	72	43	87	62	39	87	55	36	69	43	30	54	36	26	44	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	88	88	88	88	88	88	88	88	88	88	88	88	88	88	75	88	88	63	88	76	53	88	55	41	73	42	35	60	36	30	51	32	26	43	28	23	38	25	21
			Exposed	88	88	75	88	86	60	88	70	49	88	57	42	81	48	38	71	42	34	64	38	31	51	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	82	89	77	58	89	58	43	89	45	35	74	39	30	63	34	25	54	30	22
			Exposed	89	89	89	89	89	89	89	89	75	89	80	61	89	67	50	89	57	42	89	49	38	75	39	30	61	33	25	51	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	74	90	83	56	88	65	45	66	52	37	52	42	32	42	38	28
			Exposed	90	90	90	90	90	90	90	90	90	90	90	77	90	90	65	90	81	55	90	70	48	68	53	38	50	42	31	40	36	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	87	87	87	87	87	80	87	87	66	87	87	56	87	81	48	87	70	42	87	61	38	77	47	32	60	39	28	49	34	24	41	30	21	36	26	18	32	23	25
			Exposed	87	80	48	87	67	41	87	57	37	80	49	33	68	43	30	59	39	27	52	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	88	88	86	88	88	69	88	80	56	88	65	46	88	55	41	78	46	37	70	41	34	56	35	29	46	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	88	54	40	76	45	36	66	39	32	58	35	29	51	32	26	45	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	89	89	89	89	89	89	89	89	88	89	89	70	89	76	57	89	64	48	89	55	41	83	42	33	67	36	27	56	31	22	47	27	19	41	24	16	36	21	22
			Exposed	89	76	57	89	61	46	89	51	39	85	43	34	75	39	30	66	35	27	59	32	24	48	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	87	90	90	73	90	90	62	90	79	54	78	59	41	57	46	34	44	39	29	38	34	24	33	30	21	30	27	18
			Exposed	90	90	73	90	88	60	90	73	50	82	62	42	67	52	38	56	45	34	47	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	87	87	71	87	87	59	87	84	50	87	71	43	87	61	39	87	53	35	76	47	32	58	38	27	46	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	87	61	38	84	51	34	71	44	31	61	39	28	52	36	25	46	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	88	88	61	88	70	49	88	57	42	80	48	37	70	41	34	62	37	31	55	34	28	45	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	70	41	34	60	37	30	53	33	27	46	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	89	89	89	89	89	75	89	80	60	89	66	49	89	55	42	89	47	37	82	41	33	66	35	26	54	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	89	55	41	89	45	36	77	40	31	68	36	27	60	32	24	53	30	21	47	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	90	90	90	90	90	90	90	90	76	90	90	64	90	80	54	90	68	47	77	58	41	55	45	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	90	79	54	88	65	45	70	55	39	58	46	34	48	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
10	B	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	48	62	62	40	62	51	34	62	42	30	56	37	26	47	33	23
			Exposed	62	62	62	62	62	62	62	62	59	62	62	50	62	62	43	62	62	39	62	55	36	62	43	30	54	36	26	44	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	53	62	55	41	62	42	35	60	36	30	51	32	26	43	28	23	38	25	21
			Exposed	62	62	62	62	62	60	62	62	49	62	57	42	62	48	38	62	42	34	62	38	31	51	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77	58	81	58	43	81	45	35	74	39	30	63	34	25	54	30	22
			Exposed	81	81	81	81	81	81	81	81	75	81	80	61	81	67	50	81	57	42	81	49	38	75	39	30	61	33	25	51	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	74	85	83	56	85	65	45	66	52	37	52	42	32	42	38	28
			Exposed	85	85	85	85	85	85	85	85	85	85	85	77	85	85	65	85	81	55	85	70	48	68	53	38	50	42	31	40	36	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	56	62	62	48	62	62	42	62	61	38	62	47	32	60	39	28	49	34	24	41	30	21	36	26	18	32	23	25
			Exposed	62	62	48	62	62	41	62	57	37	62	49	33	62	43	30	59	39	27	52	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	62	62	62	62	62	62	62	62	56	62	62	46	62	55	41	62	46	37	62	41	34	56	35	29	46	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	62	54	40	62	45	36	62	39	32	58	35	29	51	32	26	45	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	81	81	81	81	81	81	81	81	81	81	81	70	81	76	57	81	64	48	81	55	41	81	42	33	67	36	27	56	31	22	47	27	19	41	24	16	36	21	22
			Exposed	81	76	57	81	61	46	81	51	39	81	43	34	75	39	30	66	35	27	59	32	24	48	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	73	85	85	62	85	79	54	78	59	41	57	46	34	44	39	29	38	34	24	33	30	21	30	27	18
			Exposed	85	85	73	85	85	60	85	73	50	82	62	42	67	52	38	56	45	34	47	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	62	62	62	62	62	59	62	62	50	62	62	43	62	61	39	62	53	35	62	47	32	58	38	27	46	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	62	61	38	62	51	34	62	44	31	61	39	28	52	36	25	46	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	62	62	61	62	62	49	62	57	42	62	48	37	62	41	34	62	37	31	55	34	28	45	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	62	41	34	60	37	30	53	33	27	46	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	83	83	83	83	83	75	83	80	60	83	66	49	83	55	42	83	47	37	82	41	33	66	35	26	54	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	83	55	41	83	45	36	77	40	31	68	36	27	60	32	24	53	30	21	47	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	88	88	88	88	88	88	88	88	76	88	88	64	88	80	54	88	68	47	77	58	41	55	45	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	88	79	54	88	65	45	70	55	39	58	46	34	48	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
20	B	0-7	Interior	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	34	43	42	30	43	37	26	43	33	23
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	36	43	43	30	43	36	26	43	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	42	35	43	36	30	43	32	26	43	28	23	38	25	21
			Exposed	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	34	43	38	31	43	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	58	64	58	43	64	45	35	64	39	30	63	34	25	54	30	22
			Exposed	64	64	64	64	64	64	64	64	64	64	64	61	64	64	50	64	57	42	64	49	38	64	39	30	61	33	25	51	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	56	63	63	45	62	52	37	52	42	32	42	38	28
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	55	63	63	48	63	53	38	50	42	31	40	36	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	43	32	43	39	28	43	34	24	41	30	21	36	26	18	32	23	25
			Exposed	43	43	43	43	43	41	43	43	37	43	43	33	43	43	30	43	39	27	43	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	37	43	41	34	43	35	29	43	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	43	43	40	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	57	64	64	48	64	55	41	64	42	33	64	36	27	56	31	22	47	27	19	41	24	16	36	21	22
			Exposed	64	64	57	64	61	46	64	51	39	64	43	34	64	39	30	64	35	27	59	32	24	48	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	63	63	54	63	59	41	57	46	34	44	39	29	38	34	24	33	30	21	30	27	18
			Exposed	63	63	63	63	63	60	63	63	50	63	62	42	63	52	38	56	45	34	47	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	43	38	27	43	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	43	43	38	43	43	34	43	43	31	43	39	28	43	36	25	43	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	43	43	43	43	43	43	43	43	42	43	43	37	43	41	34	43	37	31	43	34	28	43	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	43	41	34	43	37	30	43	33	27	43	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	67	67	67	67	67	67	67	67	60	67	66	49	67	55	42	67	47	37	67	41	33	66	35	26	54	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	67	55	41	67	45	36	67	40	31	67	36	27	60	32	24	53	30	21	47	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	64	67	67	54	67	67	47	67	58	41	55	45	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	67	67	54	67	65	45	67	55	39	58	46	34	48	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	42	42	30	42	37	26	42	33	23
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	36	42	42	30	42	36	26	42	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	42	35	43	36	30	43	32	26	43	28	23	38	25	21
			Exposed	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	34	43	38	31	43	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	43	51	45	35	51	39	30	51	34	25	51	30	22
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	42	51	49	38	51	39	30	51	33	25	51	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	37	47	42	32	42	38	28
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	38	47	42	31	40	36	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	32	42	39	28	42	34	24	41	30	21	36	26	18	32	23	25
			Exposed	42	42	42	42	42	41	42	42	37	42	42	33	42	42	30	42	39	27	42	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	37	43	41	34	43	35	29	43	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	43	43	40	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	51	42	33	51	36	27	51	31	22	47	27	19	41	24	16	36	21	22
			Exposed	51	51	51	51	51	46	51	51	39	51	43	34	51	39	30	51	35	27	51	32	24	48	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	46	34	44	39	29	38	34	24	33	30	21	30	27	18
			Exposed	47	47	47	47	47	47	47	47	47	47	47	42	47	47	38	47	45	34	47	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	43	38	27	43	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	43	43	38	43	43	34	43	43	31	43	39	28	43	36	25	43	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	43	43	43	43	43	43	43	43	42	43	43	37	43	41	34	43	37	31	43	34	28	43	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	43	41	34	43	37	30	43	33	27	43	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	55	55	55	55	55	55	55	55	55	55	55	49	55	55	42	55	47	37	55	41	33	55	35	26	54	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	55	55	41	55	45	36	55	40	31	55	36	27	55	32	24	53	30	21	47	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	47	51	51	41	51	45	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	51	51	51	51	51	45	51	51	39	51	46	34	48	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	30	35	35	26	35	33	23
			Exposed	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	32	22	35	28	19	33	24	26	30	22	23
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	36	30	37	32	26	36	28	23	35	25	21
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	32	27	37	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	35	39	39	30	39	34	25	39	30	22
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	30	39	33	25	39	29	21	39	25	17	38	22	15	34	20	20
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	28
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	36	26	35	32	23	31	28	19	28	25	17	28	25	17
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	34	24	35	30	21	35	26	18	32	23	25
			Exposed	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	35	29	37	30	24	35	26	21	34	22	18	30	20	25	27	26	22
			Exposed	37	37	37	37	37	36	37	37	32	37	35	29	37	32	26	37	29	24	37	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	33	39	36	27	39	31	22	39	27	19	39	24	16	36	21	22
			Exposed	39	39	39	39	39	39	39	39	39	39	39	34	39	39	30	39	35	27	39	32	24	39	27	19	39	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	34	37	37	29	37	34	24	33	30	21	30	27	18
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	30	37	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	27	37	33	23	37	28	20	34	25	27	30	22	23	27	19	21
			Exposed	37	37	37	37	37	34	37	37	31	37	37	28	37	36	25	37	32	23	37	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	39	39	39	39	39	39	39	39	39	39	39	37	39	39	34	39	37	31	39	34	28	39	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	39	39	34	39	37	30	39	33	27	39	30	24	39	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	37	43	41	33	43	35	26	43	30	22	43	26	18	39	23	15	34	20	21	30	27	18
			Exposed	43	43	41	43	43	36	43	40	31	43	36	27	43	32	24	43	30	21	43	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	33	40	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	40	40	40	40	40	40	40	40	39	40	40	34	40	40	31	40	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
50	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	22	28	28	19	28	24	26	28	22	23
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	26	31	28	23	30	25	21
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	28	23	31	24	20	31	21	26	28	18	23	25	25	20
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	25	32	30	22
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	25	32	29	21	32	25	17	32	22	15	32	20	20
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	31	23	31	28	19	28	25	17
	C	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	21	28	26	18	28	23	25
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	28	28	21	28	26	27	28	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	30	24	30	26	21	29	22	18	28	20	25	27	26	22
			Exposed	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	29	24	31	27	22	31	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	27	32	32	27	32	31	22	32	27	19	32	24	16	32	21	22
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	32	24	32	27	19	32	23	16	32	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	24	31	30	21	30	27	18
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	31	23	31	28	20	31	25	27	30	22	23	27	19	21
			Exposed	31	31	31	31	31	31	31	31	31	31	31	28	31	31	25	31	31	23	31	30	21	31	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	29	24	32	25	20	31	21	27	29	19	23	25	25	21	22	22	18
			Exposed	34	34	34	34	34	30	34	33	27	34	30	24	34	27	22	34	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	35	26	36	30	22	36	26	18	36	23	15	34	20	21	30	27	18
			Exposed	36	36	36	36	36	36	36	36	31	36	36	27	36	32	24	36	30	21	36	27	19	36	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28	33	33	23	32	28	20	28	25	17	25	22	23
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	33	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	26	24	22	23
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	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	26	25	21
			Exposed	26	26	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	26	24	20	26	21	26	26	18	23	25	25	20
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	17	27	22	15	27	20	20
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	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	26	26	19	26	25	17
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	23	25
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	27	24	22	24	24	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	26	26	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	22	18	25	20	25	24	26	22
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	23	19	26	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	27	19	27	24	16	27	21	22
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	19	27	23	16	27	20	21	27	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	26	26	26	26	26	26	26	26	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	18
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	26	26	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	26	26	20	26	25	27	26	22	23	26	19	21
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	25	27	26	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	24	28	25	20	27	21	27	26	19	23	25	25	21	22	22	18
			Exposed	29	29	29	29	29	29	29	29	27	29	29	24	29	27	22	29	24	20	29	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	18	30	23	15	30	20	21	30	27	18
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	24	30	30	21	30	27	19	30	23	16	30	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	23	29	28	20	28	25	17	25	22	23
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	26	21	21	23
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	26	22	18	23	22	25	20
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	17	24	22	15	24	20	20
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	25
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	27	21	21	24	21	19	21	21	26	18	21	23	~~16~~
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	20	25	22	26	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	19	24	22	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	21	22
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	19	24	23	16	24	20	21	24	27	18	24	24	~~16~~	24	21	~~14~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	17	22	22	22	22	20	19	19	26	17
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	23	27	23	22	23	23	19	21
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	27	23	21	23	23	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	21	27	24	19	23	23	25	21	22	22	18
			Exposed	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	24	20	25	22	19	25	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	18	26	23	15	26	20	21	26	27	18
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	21	26	26	26	26	19	26	23	16	26	20	20	26	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	17	25	22	23
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
80	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	26	18	18	23
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	26	20	18	23	20	25	20
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	20	20
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
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	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	25
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	27	18	18	24	18	18	21	18	26	18	18	23	~~16~~
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	25	19	26	22
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		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	21	22
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	20	21	21	27	18	21	24	~~16~~	21	21	~~14~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18
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	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	27	20	20	23	20	19	21
			Exposed	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	23	20	19	20	20	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	27	21	19	23	21	25	21	20	22	18
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	19	22	19	24	22	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	18	23	23	15	23	20	21	23	27	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	23	23	19	23	23	16	23	20	20	23	26	18	23	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	23
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	21	21	19	18	18	25	16	25	22	~~14~~

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	26	17	17	23	17	25	20
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	20
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	24	16	16	21	16	24	18	16	23	~~16~~
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	26	22
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	24	17	25	21	17	22	18	17	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	22
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	21	19	27	18	19	24	~~16~~	19	21	~~14~~
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	27	19	27	26	17
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	27	18	18	23	18	18	21
			Exposed	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	23	18	18	20	18	25	~~17~~	18	22	~~15~~	26	19	~~14~~
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	27	19	19	23	19	25	21	18	22	18
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	24	19	25	20	19	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	20	21	21	27	18
			Exposed	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	20	20	21	26	18	21	22	~~15~~	21	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	23
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	21	20	19	18	18	25	16	25	22	~~14~~
100	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22	14	14	22
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23	16	24	20
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22
			Exposed	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	22	14	14	21	14	22	18	14	22	~~16~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	24	22
			Exposed	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	24	21	16	22	18	16	20	~~16~~	24	~~17~~	~~14~~
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	18	25	24	~~16~~	25	21	~~14~~
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	19	24	24	17			
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23	16	16	21
			Exposed	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	23	16	16	20	16	24	~~17~~	16	22	~~15~~	24	19	~~14~~
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	26	17	17	23	17	25	21	17	22	18
			Exposed	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	25	20	17	21	~~18~~	17	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	21	19	27	18
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	20	19	26	18	19	22	~~15~~	19	20	~~14~~	19	~~18~~	~~12~~
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	23
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	27	18	27	25	16	25	22	~~14~~

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	133	144	140	70	144	131	58	143	82	50	135	63	44	103	56	39
			Exposed	144	144	144	144	144	144	144	144	142	144	144	134	144	144	96	144	139	67	144	133	60	144	84	51	133	61	44	90	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	134	145	135	59	145	61	51	145	54	44	77	47	39	64	42	35
			Exposed	145	145	145	145	145	145	145	145	145	145	145	136	145	142	64	145	134	58	145	64	53	145	54	45	75	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	143	147	136	60	147	65	50	141	57	43	133	51	37
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	142	147	139	65	147	67	51	140	56	42	118	49	35	78	42	29	64	37	26	57	33	34
		27-45	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	143	149	148	132	149	138	64	149	100	54	140	63	47
			Exposed	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	142	149	149	135	149	138	65	149	90	53	137	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	144	144	144	144	144	144	144	144	144	144	144	139	144	144	132	144	144	87	144	138	65	144	106	55	138	67	47	116	57	40	74	50	35	60	44	31	53	39	42
			Exposed	144	144	132	144	142	78	144	135	62	144	115	56	144	83	51	137	65	46	132	60	42	76	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	145	145	145	145	145	145	145	145	145	145	145	142	145	145	134	145	140	62	145	133	57	145	58	48	85	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	145	145	133	145	138	61	145	70	54	145	60	49	145	54	45	83	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	141	147	132	56	145	60	46	135	52	38	88	46	32	71	40	28	61	36	37
			Exposed	147	147	147	147	147	147	147	141	137	147	133	57	147	65	51	144	59	45	138	54	40	89	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	147	149	149	141	149	144	91	149	133	58	143	65	48	64	57	41	56	50	36	50	45	31
			Exposed	149	149	149	149	149	146	149	149	137	149	146	112	149	138	65	149	132	57	147	77	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	144	144	144	144	144	142	144	144	134	144	144	92	144	138	65	144	132	59	144	102	54	137	65	46	102	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	144	138	65	144	131	58	144	89	52	138	67	47	132	60	42	98	55	39	74	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	145	145	145	145	145	145	145	145	136	145	141	63	145	133	57	145	63	52	145	58	48	82	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	145	133	57	145	62	51	145	55	46	85	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	145	141	147	138	63	147	131	55	144	59	44	133	50	36	82	44	30	65	38	26	57	34	35	51	45	31
			Exposed	147	145	141	147	136	60	147	73	52	146	60	46	138	55	40	132	50	36	88	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	141	149	149	134	149	143	86	149	131	56	140	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	149	149	141	149	148	132	149	140	70	149	133	58	148	79	51	139	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
10	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	70	102	102	58	102	82	50	102	63	44	102	56	39
			Exposed	102	102	102	102	102	102	102	102	102	102	102	102	102	102	96	102	102	67	102	102	60	102	84	51	102	61	44	90	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	59	103	61	51	103	54	44	77	47	39	64	42	35
			Exposed	103	103	103	103	103	103	103	103	103	103	103	103	103	103	64	103	103	58	103	64	53	103	54	45	75	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	60	134	65	50	134	57	43	133	51	37
			Exposed	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	65	134	67	51	134	56	42	118	49	35	78	42	29	64	37	26	57	33	34
		27-45	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	132	137	137	64	137	100	54	137	63	47
			Exposed	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	135	137	137	65	137	90	53	137	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	87	102	102	65	102	102	55	102	67	47	102	57	40	74	50	35	60	44	31	53	39	42
			Exposed	102	102	102	102	102	78	102	102	62	102	102	56	102	83	51	102	65	46	102	60	42	76	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	62	103	103	57	103	58	48	85	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	103	103	103	103	103	61	103	70	54	103	60	49	103	54	45	83	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	132	56	134	60	46	134	52	38	88	46	32	71	40	28	61	36	37
			Exposed	134	134	134	134	134	134	134	134	134	134	133	57	134	65	51	134	59	45	134	54	40	89	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	91	137	133	58	137	65	48	64	57	41	56	50	36	50	45	31
			Exposed	137	137	137	137	137	137	137	137	137	137	137	112	137	137	65	137	132	57	137	77	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	92	102	102	65	102	102	59	102	102	54	102	65	46	102	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	102	102	65	102	102	58	102	89	52	102	67	47	102	60	42	98	55	39	74	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	63	103	103	57	103	63	52	103	58	48	82	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	103	103	57	103	62	51	103	55	46	85	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	63	138	131	55	138	59	44	133	50	36	82	44	30	65	38	26	57	34	35	51	45	31
			Exposed	138	138	138	138	136	60	138	73	52	138	60	46	138	55	40	132	50	36	88	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	141	142	142	134	142	142	86	142	131	56	140	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	142	142	141	142	142	132	142	140	70	142	133	58	142	79	51	139	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
20	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	63	44	72	56	39
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	72	60	72	72	51	72	61	44	72	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	59	72	61	51	72	54	44	72	47	39	64	42	35
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	60	106	65	50	106	57	43	106	51	37
			Exposed	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	65	106	67	51	106	56	42	106	49	35	78	42	29	64	37	26	57	33	34
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	64	103	100	54	103	63	47
			Exposed	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	65	103	90	53	103	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	55	72	67	47	72	57	40	72	50	35	60	44	31	53	39	42
			Exposed	72	72	72	72	72	72	72	72	62	72	72	56	72	72	51	72	65	46	72	60	42	72	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	62	72	72	57	72	58	48	72	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	72	72	72	72	72	61	72	70	54	72	60	49	72	54	45	72	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	56	106	60	46	106	52	38	88	46	32	71	40	28	61	36	37
			Exposed	106	106	106	106	106	106	106	106	106	106	106	57	106	65	51	106	59	45	106	54	40	89	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	91	103	103	58	103	65	48	64	57	41	56	50	36	50	45	31
			Exposed	103	103	103	103	103	103	103	103	103	103	103	103	103	103	65	103	103	57	103	77	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	72	65	46	72	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	72	72	65	72	72	58	72	72	52	72	67	47	72	60	42	72	55	39	72	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	63	72	72	57	72	63	52	72	58	48	72	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	72	72	57	72	62	51	72	55	46	72	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	63	111	111	55	111	59	44	111	50	36	82	44	30	65	38	26	57	34	35	51	45	31
			Exposed	111	111	111	111	111	60	111	73	52	111	60	46	111	55	40	111	50	36	88	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	86	109	109	56	109	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	109	109	109	109	109	109	109	109	70	109	109	58	109	79	51	109	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23

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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.

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ASCE 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	70	50	70	63	44	70	56	39
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	60	70	70	51	70	61	44	70	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	59	72	61	51	72	54	44	72	47	39	64	42	35
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	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	84	84	60	84	65	50	84	57	43	84	51	37
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	65	84	67	51	84	56	42	84	49	35	78	42	29	64	37	26	57	33	34
		27-45	Interior	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	78	78	78	78	78	64	78	78	54	78	63	47
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	65	78	78	53	78	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	55	70	67	47	70	57	40	70	50	35	60	44	31	53	39	42
			Exposed	70	70	70	70	70	70	70	70	62	70	70	56	70	70	51	70	65	46	70	60	42	70	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	62	72	72	57	72	58	48	72	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	72	72	72	72	72	61	72	70	54	72	60	49	72	54	45	72	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	56	84	60	46	84	52	38	84	46	32	71	40	28	61	36	37
			Exposed	84	84	84	84	84	84	84	84	84	84	84	57	84	65	51	84	59	45	84	54	40	84	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	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	58	78	65	48	64	57	41	56	50	36	50	45	31
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	65	78	78	57	78	77	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	72	65	46	72	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	72	72	65	72	72	58	72	72	52	72	67	47	72	60	42	72	55	39	72	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	63	72	72	57	72	63	52	72	58	48	72	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	72	72	57	72	62	51	72	55	46	72	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	63	92	92	55	92	59	44	92	50	36	82	44	30	65	38	26	57	34	35	51	45	31
			Exposed	92	92	92	92	92	60	92	73	52	92	60	46	92	55	40	92	50	36	88	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	56	84	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	84	84	84	84	84	84	84	84	70	84	84	58	84	79	51	84	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	58	44	58	56	39
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	44	58	53	38	58	46	33	56	41	44	50	36	39
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	54	44	61	47	39	59	42	35
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	54	45	61	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	60	66	65	50	66	57	43	66	51	37
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	66	66	51	66	56	42	66	49	35	66	42	29	64	37	26	57	33	34
		27-45	Interior	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	62	62	62	62	62	54	62	62	47
			Exposed	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	53	62	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	47	58	57	40	58	50	35	58	44	31	53	39	42
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	51	58	58	46	58	58	42	58	50	36	58	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	58	48	61	50	41	59	43	36	57	38	31	51	33	42	45	45	37
			Exposed	61	61	61	61	61	61	61	61	54	61	60	49	61	54	45	61	49	41	61	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	56	66	60	46	66	52	38	66	46	32	66	40	28	61	36	37
			Exposed	66	66	66	66	66	66	66	66	66	66	66	57	66	65	51	66	59	45	66	54	40	66	46	32	66	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	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	58	62	62	48	62	57	41	56	50	36	50	45	31
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	57	62	62	51	62	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	54	62	62	46	62	55	39	62	48	34	57	42	45	51	37	39	45	33	35
			Exposed	62	62	62	62	62	58	62	62	52	62	62	47	62	60	42	62	55	39	62	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	63	66	66	57	66	63	52	66	58	48	66	49	40	63	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	66	66	57	66	62	51	66	55	46	66	50	41	66	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	63	72	72	55	72	59	44	72	50	36	72	44	30	65	38	26	57	34	35	51	45	31
			Exposed	72	72	72	72	72	60	72	72	52	72	60	46	72	55	40	72	50	36	72	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	56	67	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	67	67	67	67	67	67	67	67	67	67	67	58	67	67	51	67	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
50	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	39
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	46	33	47	41	44	47	36	39
		7-20	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	44	51	47	39	50	42	35
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	46	38	51	40	33	51	35	44	47	31	39	42	42	34
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	50	54	54	43	54	51	37
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	42	54	49	35	54	42	29	54	37	26	54	33	34
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	47
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	51	38	51	47	33	46	42	28
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	40	47	47	35	47	44	31	47	39	42
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	42	47	47	36	47	43	31	47	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	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	50	41	51	43	36	49	38	31	47	33	42	45	45	37
			Exposed	51	51	51	51	51	51	51	51	51	51	51	49	51	51	45	51	49	41	51	45	37	51	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	52	38	54	46	32	54	40	28	54	36	37
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	45	54	54	40	54	46	32	54	39	27	54	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	41	51	50	36	50	45	31
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	42	51	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	39	52	48	34	52	42	45	51	37	39	45	33	35
			Exposed	52	52	52	52	52	52	52	52	52	52	52	47	52	52	42	52	52	39	52	50	35	52	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	48	56	49	40	54	42	35	52	36	45	48	32	40	43	42	35	38	37	31
			Exposed	57	57	57	57	57	51	57	55	46	57	50	41	57	45	37	57	41	34	57	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	55	59	59	44	59	50	36	59	44	30	59	38	26	57	34	35	51	45	31
			Exposed	59	59	59	59	59	59	59	59	52	59	59	46	59	55	40	59	50	36	59	46	32	59	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	47	56	55	39	53	48	34	47	42	29	42	38	38
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	56	56	46	56	56	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23

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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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	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
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	44	40	36	39
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	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	43	42	35
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	40	33	43	35	44	43	31	39	42	42	34
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	37
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	35	46	42	29	46	37	26	46	33	34
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	33	43	42	28
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	31	40	39	42
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	31	40	37	40	40	33	35	39	43	31	35	39	~~27~~
		7-20	Interior	43	43	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	43	43	36	43	38	31	42	33	42	40	45	37
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	37	43	38	32	43	33	41	43	43	35	38	37	31	33	33	~~27~~	45	~~29~~	~~24~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	46	32	46	40	28	46	36	37
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	40	46	46	32	46	39	27	46	34	35	46	45	31	45	40	27	40	35	~~24~~
		27-45	Interior	43	43	43	43	43	43	43	43	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	43	43	36	43	43	31
			Exposed	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	35	43	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	34	44	42	45	44	37	39	44	33	35
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	39	44	44	35	44	42	45	44	36	39	43	31	34	38	41	~~29~~	33	37	~~26~~	44	32	~~23~~
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	40	48	42	35	46	36	45	44	32	40	43	42	35	38	37	31
			Exposed	48	48	48	48	48	48	48	48	46	48	48	41	48	45	37	48	41	34	48	38	31	48	32	40	42	41	34	36	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	36	50	44	30	50	38	26	50	34	35	50	45	31
			Exposed	50	50	50	50	50	50	50	50	50	50	50	46	50	50	40	50	50	36	50	46	32	50	39	26	50	33	34	49	43	30	43	38	26	38	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34	47	42	29	42	38	38
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	41	48	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	~~23~~
70	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	44	35	35	39
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	35	44	37	31	39	37	42	34
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	29	40	37	26	40	33	34
		27-45	Interior	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
			Exposed	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	33	38	38	28
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	42
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	40	35	33	35	35	43	31	35	39	~~27~~
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	33	42	36	45	37
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	33	41	37	43	35	37	37	31	33	33	~~27~~	45	~~29~~	~~24~~
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	32	40	40	28	40	36	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	32	40	39	27	40	34	35	40	45	31	40	40	27	40	35	~~24~~
		27-45	Interior	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	38	38	31
			Exposed	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	35	38	38	29	38	37	38	37	33	33	33	44	29
	D	0-7	Interior	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	34	38	38	45	38	37	39	38	33	35
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	45	38	36	39	38	31	34	38	41	~~29~~	33	37	~~26~~	44	32	~~23~~
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	35	41	36	45	40	32	40	38	42	35	37	37	31
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	34	41	38	31	41	32	40	41	41	34	36	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	36	44	44	30	44	38	26	44	34	35	44	45	31
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	36	44	44	32	44	39	26	44	33	34	44	43	30	43	38	26	38	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	34	41	41	29	41	38	38
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	34	41	41	28	40	36	36	35	32	31	31	42	27	42	37	~~23~~
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	44	30	30	39
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	44	33	31	39	33	42	34
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	29	35	35	26	35	33	34
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	42
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	30	30	35	30	43	31	30	39	~~27~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	42	33	45	37
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	41	33	43	35	33	37	31	33	33	~~27~~	45	~~29~~	~~24~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	35	37
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	34	35	35	45	31	35	40	27	35	35	~~24~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	33	38	33	33	33	33	44	29
	D	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	45	34	34	39	34	33	35
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	45	34	34	39	34	31	34	34	41	~~29~~	33	37	~~26~~	44	32	~~23~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	45	36	32	40	35	42	35	34	37	31
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	32	40	36	41	34	36	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	30	39	38	26	39	34	35	39	45	31
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	32	39	39	26	39	33	34	39	43	30	39	38	26	38	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	37	38
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	28	37	36	36	35	32	31	31	42	27	42	37	~~23~~

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	41	27	27	39
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	44	29	29	39	29	42	34
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	34
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	41
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	40	27	27	35	27	41	31	27	39	~~27~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	42	29	44	37
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	41	29	43	35	29	37	31	29	33	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	37
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	31	35	31	45	31	31	40	27	31	35	~~24~~
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33	45	44	29
	D	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	30	30	39	30	30	35
			Exposed	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	39	30	30	34	30	41	~~29~~	30	37	~~26~~	44	32	~~23~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	45	33	32	40	32	42	35	31	37	31
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	32	40	33	41	34	33	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	34	35	35	45	31
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	26	35	33	34	35	43	30	35	38	26	35	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	33	38
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28	33	33	36	33	32	31	31	42	27	42	37	~~23~~
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37	24	24	37
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	40	27	27	39	27	40	34
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	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	43	43	34
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37	24	24	35	24	37	31	24	37	~~27~~
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	40	27	40	37
			Exposed	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	40	35	27	37	31	27	33	~~27~~	40	~~29~~	~~24~~	40	~~29~~	~~24~~
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	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
			Exposed	43	43	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	43	43	35	43	43	31	43	40	27	43	35	~~24~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	33	41	41	29
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	41	27	27	39	27	27	35
			Exposed	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	39	27	27	34	27	41	~~29~~	27	37	~~26~~	41	32	~~23~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	44	29	29	40	29	42	35	29	37	31
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	40	29	41	34	29	36	~~30~~	29	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	26	31	31	35	31	45	31
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	31	34	31	43	30	31	38	26	31	33	~~23~~	31	~~30~~	~~20~~
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	36	45	45	31	45	42	27	42	37	~~23~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	61	73	73	53	73	68	40	73	53	33	70	43	29	57	35	25	47	31	22	39	28	19
			Exposed	73	73	72	73	73	59	73	73	49	73	70	42	73	60	36	73	52	33	73	46	30	57	36	25	45	30	22	37	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	63	73	73	52	73	63	44	73	46	34	61	35	29	50	30	25	42	27	22	36	23	19	32	21	26
			Exposed	73	73	62	73	72	50	73	58	41	73	48	35	68	40	32	60	35	29	53	32	26	43	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	69	74	64	48	74	48	36	74	38	30	62	32	25	53	28	21	45	25	18
			Exposed	74	74	74	74	74	74	74	74	62	74	67	51	74	56	42	74	47	35	74	41	31	63	32	25	51	28	21	43	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	62	75	70	47	74	54	37	55	43	31	43	35	27	35	31	23
			Exposed	75	75	75	75	75	75	75	75	75	75	75	64	75	75	54	75	68	46	75	58	40	57	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	73	73	73	73	73	66	73	73	55	73	73	47	73	67	40	73	58	35	73	51	32	64	40	27	50	33	23	41	28	20	34	25	26	30	22	23	26	19	21
			Exposed	73	67	40	73	56	34	73	48	31	67	41	28	57	36	25	49	32	23	43	30	21	34	25	27	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	73	73	72	73	73	57	73	67	47	73	55	39	73	46	34	66	39	31	58	34	28	47	29	24	38	25	20	33	21	18	29	19	23	25	25	21	22	22	~~18~~
			Exposed	73	45	34	63	37	30	55	33	27	48	30	24	43	27	22	38	24	20	34	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	74	74	74	74	74	74	74	74	73	74	74	58	74	64	48	74	54	40	74	46	34	69	35	28	56	30	23	47	26	19	39	23	16	34	20	21	30	27	18
			Exposed	74	63	48	74	51	38	74	43	33	71	36	28	63	32	25	55	29	22	49	27	20	40	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	75	75	75	75	75	75	75	75	75	75	75	73	75	75	61	75	75	52	75	66	45	65	50	35	48	39	29	37	32	24	32	28	20	28	25	18	25	22	23
			Exposed	75	75	61	75	74	50	75	61	42	69	51	35	56	44	32	47	38	28	40	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	73	73	60	73	73	49	73	70	42	73	59	36	73	51	32	73	45	29	63	39	27	49	32	23	39	27	19	33	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	73	51	32	70	43	29	59	37	26	51	33	23	44	30	21	38	27	19	34	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	73	73	51	73	58	41	73	48	35	67	40	31	59	34	28	52	31	26	46	29	24	37	24	20	32	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	58	34	28	50	31	25	44	27	23	39	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	74	74	74	74	74	63	74	67	50	74	55	41	74	46	35	74	39	31	68	35	27	55	29	22	45	25	18	37	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	74	46	35	74	38	30	65	33	26	56	30	23	50	27	20	44	25	18	39	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	75	75	75	75	75	75	75	75	64	75	75	53	75	67	45	75	57	39	64	49	34	46	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	75	66	45	74	54	37	59	46	32	48	39	29	40	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
10	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	40	52	52	33	52	43	29	52	35	25	47	31	22	39	28	19
			Exposed	52	52	52	52	52	52	52	52	49	52	52	42	52	52	36	52	52	33	52	46	30	52	36	25	45	30	22	37	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	44	52	46	34	52	35	29	50	30	25	42	27	22	36	23	19	32	21	26
			Exposed	52	52	52	52	52	50	52	52	41	52	48	35	52	40	32	52	35	29	52	32	26	43	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	48	68	48	36	68	38	30	62	32	25	53	28	21	45	25	18
			Exposed	68	68	68	68	68	68	68	68	62	68	67	51	68	56	42	68	47	35	68	41	31	63	32	25	51	28	21	43	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	62	72	70	47	72	54	37	55	43	31	43	35	27	35	31	23
			Exposed	72	72	72	72	72	72	72	72	72	72	72	64	72	72	54	72	68	46	72	58	40	57	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	47	52	52	40	52	52	35	52	51	32	52	40	27	50	33	23	41	28	20	34	25	26	30	22	23	26	19	21
			Exposed	52	52	40	52	52	34	52	48	31	52	41	28	52	36	25	49	32	23	43	30	21	34	25	27	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	52	52	52	52	52	52	52	52	47	52	52	39	52	46	34	52	39	31	52	34	28	47	29	24	38	25	20	33	21	18	29	19	23	25	25	21	22	22	~~18~~
			Exposed	52	45	34	52	37	30	52	33	27	48	30	24	43	27	22	38	24	20	34	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	58	68	64	48	68	54	40	68	46	34	68	35	28	56	30	23	47	26	19	39	23	16	34	20	21	30	27	18
			Exposed	68	63	48	68	51	38	68	43	33	68	36	28	63	32	25	55	29	22	49	27	20	40	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	61	72	72	52	72	66	45	65	50	35	48	39	29	37	32	24	32	28	20	28	25	18	25	22	23
			Exposed	72	72	61	72	72	50	72	61	42	69	51	35	56	44	32	47	38	28	40	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	52	52	52	52	52	49	52	52	42	52	52	36	52	51	32	52	45	29	52	39	27	49	32	23	39	27	19	33	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	52	51	32	52	43	29	52	37	26	51	33	23	44	30	21	38	27	19	34	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	52	52	51	52	52	41	52	48	35	52	40	31	52	34	28	52	31	26	46	29	24	37	24	20	32	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	52	34	28	50	31	25	44	27	23	39	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	70	70	70	70	70	63	70	67	50	70	55	41	70	46	35	70	39	31	68	35	27	55	29	22	45	25	18	37	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	70	46	35	70	38	30	65	33	26	56	30	23	50	27	20	44	25	18	39	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	74	74	74	74	74	74	74	74	64	74	74	53	74	67	45	74	57	39	64	49	34	46	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	74	66	45	74	54	37	59	46	32	48	39	29	40	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
20	B	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	29	36	35	25	36	31	22	36	28	19
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	25	36	30	22	36	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	35	29	36	30	25	36	27	22	36	23	19	32	21	26
			Exposed	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	35	29	36	32	26	36	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	48	36	54	38	30	54	32	25	53	28	21	45	25	18
			Exposed	54	54	54	54	54	54	54	54	54	54	54	51	54	54	42	54	47	35	54	41	31	54	32	25	51	28	21	43	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	47	53	53	37	52	43	31	43	35	27	35	31	23
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	46	53	53	40	53	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	36	27	36	33	23	36	28	20	34	25	26	30	22	23	26	19	21
			Exposed	36	36	36	36	36	34	36	36	31	36	36	28	36	36	25	36	32	23	36	30	21	34	25	27	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	34	28	36	29	24	36	25	20	33	21	18	29	19	23	25	25	21	22	22	~~18~~
			Exposed	36	36	34	36	36	30	36	33	27	36	30	24	36	27	22	36	24	20	34	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	48	54	54	40	54	46	34	54	35	28	54	30	23	47	26	19	39	23	16	34	20	21	30	27	18
			Exposed	54	54	48	54	51	38	54	43	33	54	36	28	54	32	25	54	29	22	49	27	20	40	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	45	53	50	35	48	39	29	37	32	24	32	28	20	28	25	18	25	22	23
			Exposed	53	53	53	53	53	50	53	53	42	53	51	35	53	44	32	47	38	28	40	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	36	32	23	36	27	19	33	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	36	36	32	36	36	29	36	36	26	36	33	23	36	30	21	36	27	19	34	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	36	36	36	36	36	36	36	36	35	36	36	31	36	34	28	36	31	26	36	29	24	36	24	20	32	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	36	34	28	36	31	25	36	27	23	36	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	56	56	56	56	56	56	56	56	50	56	55	41	56	46	35	56	39	31	56	35	27	55	29	22	45	25	18	37	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	56	46	35	56	38	30	56	33	26	56	30	23	50	27	20	44	25	18	39	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	53	56	56	45	56	56	39	56	49	34	46	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	56	56	45	56	54	37	56	46	32	48	39	29	40	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	29	35	35	25	35	31	22	35	28	19
			Exposed	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	30	22	35	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	35	29	36	30	25	36	27	22	36	23	19	32	21	26
			Exposed	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	35	29	36	32	26	36	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	42	42	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	42	38	30	42	32	25	42	28	21	42	25	18
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	35	42	41	31	42	32	25	42	28	21	42	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	31	39	35	27	35	31	23
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	32	39	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	33	23	35	28	20	34	25	26	30	22	23	26	19	21
			Exposed	35	35	35	35	35	34	35	35	31	35	35	28	35	35	25	35	32	23	35	30	21	34	25	27	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	34	28	36	29	24	36	25	20	33	21	18	29	19	23	25	25	21	22	22	~~18~~
			Exposed	36	36	34	36	36	30	36	33	27	36	30	24	36	27	22	36	24	20	34	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	42	35	28	42	30	23	42	26	19	39	23	16	34	20	21	30	27	18
			Exposed	42	42	42	42	42	38	42	42	33	42	36	28	42	32	25	42	29	22	42	27	20	40	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	35	39	39	29	37	32	24	32	28	20	28	25	18	25	22	23
			Exposed	39	39	39	39	39	39	39	39	39	39	39	35	39	39	32	39	38	28	39	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	36	32	23	36	27	19	33	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	36	36	32	36	36	29	36	36	26	36	33	23	36	30	21	36	27	19	34	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	36	36	36	36	36	36	36	36	35	36	36	31	36	34	28	36	31	26	36	29	24	36	24	20	32	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	36	34	28	36	31	25	36	27	23	36	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	35	46	39	31	46	35	27	46	29	22	45	25	18	37	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	46	46	35	46	38	30	46	33	26	46	30	23	46	27	20	44	25	18	39	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	34	43	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	43	43	43	43	43	37	43	43	32	43	39	29	40	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
40	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	28	19
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	26	19	29	23	25	28	20	22	25	18	19
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	30	25	31	27	22	30	23	19	29	21	26
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	27	22	31	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	32	25	33	28	21	33	25	18
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	32	25	33	28	21	33	24	17	33	21	14	32	18	19	28	25	17
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	31	23
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	23	29	28	20	29	25	26	29	22	23	26	19	21
			Exposed	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	29	21	29	25	~~27~~	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	29	24	31	25	20	30	21	18	28	19	23	25	25	21	22	22	~~18~~
			Exposed	31	31	31	31	31	30	31	31	27	31	30	24	31	27	22	31	24	20	31	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28	33	30	23	33	26	19	33	23	16	33	20	21	30	27	18
			Exposed	33	33	33	33	33	33	33	33	33	33	33	28	33	32	25	33	29	22	33	27	20	33	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	24	31	28	20	28	25	18	25	22	23
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	25	31	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	31	23	31	27	19	31	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	31	31	31	31	31	29	31	31	26	31	31	23	31	30	21	31	27	19	31	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	31	26	33	29	24	33	24	20	31	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	33	33	28	33	31	25	33	27	23	33	25	20	33	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31	36	35	27	36	29	22	36	25	18	36	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	36	36	35	36	36	30	36	33	26	36	30	23	36	27	20	36	25	18	36	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	28	34	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	34	34	34	34	34	34	34	34	32	34	34	29	34	34	25	34	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
50	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	22	24	24	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	23	25	24	20	22	24	18	19
		7-20	Interior	26	26	26	26	26	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	23	19	25	21	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	23	19	26	20	25	26	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	24	17	27	21	14	27	18	19	27	25	17
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	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
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	23	16	23	21	21
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	23	24	24	20	24	24	26	24	22	23	24	19	21
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	~~27~~	24	21	23	24	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	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	25	20	25	21	18	24	19	23	24	25	21	22	22	~~18~~
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	24	20	26	22	18	26	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	27	23	27	26	19	27	23	16	27	20	21	27	27	18
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	23	16	27	19	20	27	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	26	26	26	26	26	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	20	26	25	18	25	22	23
			Exposed	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	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	19	26	24	25	26	21	22	25	18	20	22	24	~~17~~
			Exposed	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	25	26	26	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	24	20	27	21	26	26	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	28	28	28	28	28	25	28	27	23	28	25	20	28	22	19	28	20	26	28	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	29	22	30	25	18	30	22	15	30	19	20	28	25	17	25	22	~~15~~
			Exposed	30	30	30	30	30	30	30	30	26	30	30	23	30	27	20	30	25	18	30	23	16	30	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	23	28	27	19	26	24	17	23	21	22	21	19	19
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	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
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	25	20	20	22	20	18	19
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	21	26
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	25	22	26	22	22	23	19	21	21	~~17~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	17	23	21	14	23	18	19	23	25	17
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	21	21
	C	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	26	20	20	23	20	19	21
			Exposed	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	23	20	18	20	20	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	18	21	19	23	21	25	21	20	22	~~18~~
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	19	24	22	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	16	23	20	21	23	27	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	16	23	19	20	23	26	17	23	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	23
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	17	22	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	25	22	21	22	22	18	20	22	24	~~17~~
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	26	22	21	22	22	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	21	26	23	18	22	22	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	24	24	24	24	24	24	24	24	23	24	24	20	24	22	19	24	20	26	24	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	18	25	22	15	25	19	20	25	25	17	25	22	~~15~~
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	18	25	23	16	25	19	20	25	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	19	24	24	17	23	21	22	21	19	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
70	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	17	22	17	17	19
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	26
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	25	19	26	22	19	23	19	19	21	~~17~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	14	20	18	19	20	25	17
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	21
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	26	17	17	23	17	17	21
			Exposed	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	20	17	24	~~17~~	17	22	~~15~~	26	19	~~14~~
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	23	19	25	21	18	22	~~18~~
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	24	19	24	20	19	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	21	20	27	18
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	16	20	19	20	20	26	17	20	22	~~15~~	20	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	23
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	22	19	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	25	19	19	22	19	18	20	19	24	~~17~~
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	26	19	19	22	19	27	19	19	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	26	20	18	22	20	24	20	19	21	~~17~~	18	~~19~~	~~15~~
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	19	21	20	26	21	19	23	21	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	15	22	19	20	22	25	17	22	22	~~15~~
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	19	20	22	25	17	22	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	22	21	19	19
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
80	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	22	15	15	19
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	25
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	25	16	25	22	16	23	19	16	21	~~17~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	25	17
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	23	15	15	21
			Exposed	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	22	~~15~~	23	19	~~14~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23	16	25	21	16	22	~~18~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	24	20	16	21	~~17~~	16	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	21	26	26	18
			Exposed	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	20	26	26	17	26	22	~~15~~	26	20	~~13~~	26	~~17~~	~~12~~
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	25	16	25	22	~~14~~
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	17	22	17	17	20	17	24	~~17~~
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	17	22	17	25	19	17	23	~~17~~	17	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	26	18	18	22	18	24	20	17	21	~~17~~	17	~~19~~	~~15~~
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	26	18	18	23	18	24	20	18	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	20	19	25	17	19	22	~~15~~
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	20	19	25	17	19	21	~~15~~	19	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	22	18	18	19
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	21	18	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~

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UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	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	13	13	13
			Exposed	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	13	13	19
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	22	15	22	19	15	21	~~17~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
	C	0-7	Interior	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	13	13	20
			Exposed	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~~	20	19	~~14~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	21	15	22	~~18~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	20	15	21	~~17~~	15	~~18~~	~~15~~	22	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	17	24	22	~~15~~	24	20	~~13~~	24	~~17~~	~~12~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	22	~~14~~
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	22	15	15	20	15	23	~~17~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	22	15	23	19	15	23	~~17~~	15	20	~~15~~	23	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	22	16	24	20	16	21	~~17~~	15	~~19~~	~~15~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23	16	24	20	16	20	~~17~~	24	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	20	26	25	17	26	22	~~15~~
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	20	26	25	17	26	21	~~15~~	26	19	~~13~~	26	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~			
100	B	0-7	Interior	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	12
			Exposed	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	18
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	20	20	24	20	19	24	20	~~17~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	C	0-7	Interior	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	18
			Exposed	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	~~17~~	12	18	~~15~~	18	18	~~14~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	20	20	24	20	~~18~~
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	20	20	24	20	~~17~~	24	~~18~~	~~15~~	20	~~16~~	~~13~~	20	~~14~~	~~12~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	~~15~~	21	20	~~13~~	21	~~17~~	~~12~~			
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	~~14~~
	D	0-7	Interior	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	20	13	20	~~17~~
			Exposed	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	20	19	13	20	~~17~~	13	20	~~15~~	20	~~18~~	~~13~~	20	~~16~~	~~11~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	22	15	22	20	15	21	~~17~~	14	~~19~~	~~15~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	22	15	22	20	15	20	~~17~~	22	~~18~~	~~15~~	22	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	22	~~15~~
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	17	24	21	~~15~~	24	19	~~13~~	24	~~17~~	~~11~~	24	~~15~~	~~10~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	~~15~~	22	21	~~13~~	21	~~18~~	~~11~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	131	141	139	65	141	120	56	141	77	49	133	61	43	96	54	38
			Exposed	141	141	141	141	141	141	141	141	140	141	141	133	141	141	87	141	138	64	141	132	59	141	79	50	132	60	43	84	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	82	141	134	57	141	60	50	141	52	43	75	46	38	63	41	34
			Exposed	141	141	141	141	141	141	141	141	141	141	141	134	141	140	62	141	133	57	141	63	52	141	53	44	72	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	142	143	143	142	143	134	59	143	63	49	140	56	42	131	50	36
			Exposed	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	140	143	137	62	143	64	50	139	55	41	100	47	34	75	42	29	62	37	25	55	33	34
		27-45	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	141	146	146	131	146	136	62	146	88	53	139	62	46
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	140	146	146	134	146	137	63	146	80	52	82	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	138	141	141	131	141	141	79	141	137	63	141	98	53	137	65	46	106	56	40	70	49	35	59	43	46	52	38	41
			Exposed	141	141	131	141	141	72	141	134	60	141	106	55	141	78	49	136	64	45	128	58	41	72	49	35	58	42	45	50	37	39	44	48	34	39	43	~~30~~	34	38	~~27~~
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	140	141	141	78	141	138	61	141	82	56	141	57	47	82	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	141	141	75	141	136	59	141	65	53	141	58	48	141	53	44	80	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	139	143	91	54	143	59	45	133	51	37	84	45	31	68	39	27	59	35	36
			Exposed	143	143	143	143	143	143	143	140	69	143	132	56	143	64	49	143	58	44	136	53	39	86	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	~~24~~
		27-45	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	142	80	146	131	56	141	64	47	62	56	40	55	49	35	49	44	30
			Exposed	146	146	146	146	146	144	146	146	136	146	144	91	146	137	62	146	122	56	145	70	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	141	141	141	141	141	140	141	141	133	141	141	84	141	137	63	141	131	58	141	95	53	135	63	45	95	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	141	137	63	141	121	56	141	84	51	137	65	46	131	59	41	91	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	141	141	141	141	141	141	141	141	134	141	139	62	141	88	56	141	62	51	141	56	47	79	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	~~30~~
			Exposed	141	83	56	141	60	50	141	54	45	82	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	139	143	136	61	143	84	54	142	58	43	131	49	36	79	43	30	64	37	26	56	33	34	50	44	30
			Exposed	143	143	139	143	134	59	143	66	51	143	59	45	137	53	39	126	49	35	85	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	146	133	146	142	77	146	109	55	138	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	146	146	139	146	146	131	146	138	65	146	131	56	146	72	50	137	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	~~23~~
10	B	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	65	100	100	56	100	77	49	100	61	43	96	54	38
			Exposed	100	100	100	100	100	100	100	100	100	100	100	100	100	100	87	100	100	64	100	100	59	100	79	50	100	60	43	84	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	82	101	101	57	101	60	50	101	52	43	75	46	38	63	41	34
			Exposed	101	101	101	101	101	101	101	101	101	101	101	101	101	101	62	101	101	57	101	63	52	101	53	44	72	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	59	131	63	49	131	56	42	131	50	36
			Exposed	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	62	131	64	50	131	55	41	100	47	34	75	42	29	62	37	25	55	33	34
		27-45	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	131	134	134	62	134	88	53	134	62	46
			Exposed	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	63	134	80	52	82	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	79	100	100	63	100	98	53	100	65	46	100	56	40	70	49	35	59	43	46	52	38	41
			Exposed	100	100	100	100	100	72	100	100	60	100	100	55	100	78	49	100	64	45	100	58	41	72	49	35	58	42	45	50	37	39	44	48	34	39	43	~~30~~	34	38	~~27~~
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	78	101	101	61	101	82	56	101	57	47	82	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	101	101	75	101	101	59	101	65	53	101	58	48	101	53	44	80	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	91	54	131	59	45	131	51	37	84	45	31	68	39	27	59	35	36
			Exposed	131	131	131	131	131	131	131	131	69	131	131	56	131	64	49	131	58	44	131	53	39	86	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	~~24~~
		27-45	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	80	134	131	56	134	64	47	62	56	40	55	49	35	49	44	30
			Exposed	134	134	134	134	134	134	134	134	134	134	134	91	134	134	62	134	122	56	134	70	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	84	100	100	63	100	100	58	100	95	53	100	63	45	95	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	100	100	63	100	100	56	100	84	51	100	65	46	100	59	41	91	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	62	101	88	56	101	62	51	101	56	47	79	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	~~30~~
			Exposed	101	83	56	101	60	50	101	54	45	82	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	61	135	84	54	135	58	43	131	49	36	79	43	30	64	37	26	56	33	34	50	44	30
			Exposed	135	135	135	135	134	59	135	66	51	135	59	45	135	53	39	126	49	35	85	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	133	138	138	77	138	109	55	138	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	138	138	138	138	138	131	138	138	65	138	131	56	138	72	50	137	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	~~23~~
20	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	56	70	70	49	70	61	43	70	54	38	70	54	38
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	59	70	70	50	70	60	43	70	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	57	71	71	57	71	60	50	71	52	43	71	46	38	63	41	34
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	59	104	63	49	104	56	42	104	50	36
			Exposed	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	62	104	64	50	104	55	41	100	47	34	75	42	29	62	37	25	55	33	34
		27-45	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	62	101	88	53	98	62	46
			Exposed	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	63	101	80	52	82	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	53	70	65	46	70	56	40	70	49	35	59	43	46	52	38	41
			Exposed	70	70	70	70	70	70	70	70	60	70	70	55	70	70	49	70	64	45	70	58	41	70	49	35	58	42	45	50	37	39	44	48	34	39	43	~~30~~	34	38	~~27~~
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	61	71	71	56	71	57	47	71	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	71	71	71	71	71	59	71	65	53	71	58	48	71	53	44	71	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	91	54	104	59	45	104	51	37	84	45	31	68	39	27	59	35	36
			Exposed	104	104	104	104	104	104	104	104	69	104	104	56	104	64	49	104	58	44	104	53	39	86	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	~~24~~
		27-45	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	80	101	101	56	101	64	47	62	56	40	55	49	35	49	44	30
			Exposed	101	101	101	101	101	101	101	101	101	101	101	91	101	101	62	101	101	56	101	70	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	58	70	70	53	70	63	45	70	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	70	70	63	70	70	56	70	70	51	70	65	46	70	59	41	70	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	62	71	71	56	71	62	51	71	56	47	71	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	~~30~~
			Exposed	71	71	56	71	60	50	71	54	45	71	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	61	109	84	54	109	58	43	109	49	36	79	43	30	64	37	26	56	33	34	50	44	30
			Exposed	109	109	109	109	109	59	109	66	51	109	59	45	109	53	39	109	49	35	85	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	77	106	106	55	104	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	106	106	106	106	106	106	106	106	65	106	106	56	106	72	50	106	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	~~23~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	56	68	68	49	68	61	43	68	54	38
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	68	59	68	68	50	68	60	43	68	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	57	71	60	50	71	52	43	71	46	38	63	41	34
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	59	82	63	49	82	56	42	82	50	36
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	62	82	64	50	82	55	41	82	47	34	75	42	29	62	37	25	55	33	34
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	62	76	76	53	76	62	46
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	63	76	76	52	76	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	53	68	65	46	68	56	40	68	49	35	59	43	46	52	38	41
			Exposed	68	68	68	68	68	68	68	68	60	68	68	55	68	68	49	68	64	45	68	58	41	68	49	35	58	42	45	50	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	61	71	71	56	71	57	47	71	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	71	71	71	71	71	59	71	65	53	71	58	48	71	53	44	71	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	54	82	59	45	82	51	37	82	45	31	68	39	27	59	35	36
			Exposed	82	82	82	82	82	82	82	82	69	82	82	56	82	64	49	82	58	44	82	53	39	82	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	56	76	64	47	62	56	40	55	49	35	49	44	30
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	62	76	76	56	76	70	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	58	70	70	53	70	63	45	70	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	70	70	63	70	70	56	70	70	51	70	65	46	70	59	41	70	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	62	71	71	56	71	62	51	71	56	47	71	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	30
			Exposed	71	71	56	71	60	50	71	54	45	71	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	61	89	84	54	89	58	43	89	49	36	79	43	30	64	37	26	56	33	34	50	44	30
			Exposed	89	89	89	89	89	59	89	66	51	89	59	45	89	53	39	89	49	35	85	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	77	82	82	55	82	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	82	82	82	82	82	82	82	82	65	82	82	56	82	72	50	82	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23
40	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	49	57	57	43	57	54	38
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	43	57	52	37	57	45	32	55	40	43	49	36	38
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	50	60	52	43	59	46	38	57	41	34
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	53	44	60	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	63	49	64	56	42	64	50	36
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	50	64	55	41	64	47	34	64	42	29	62	37	25	55	33	34
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	60	60	46
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	52	60	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	46	57	56	40	57	49	35	57	43	46	52	38	41
			Exposed	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49	57	57	45	57	57	41	57	49	35	57	42	45	50	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	57	47	60	49	40	58	42	35	56	37	46	50	33	41	44	44	36
			Exposed	60	60	60	60	60	59	60	60	53	60	58	48	60	53	44	60	48	40	60	44	36	57	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	54	64	59	45	64	51	37	64	45	31	64	39	27	59	35	36
			Exposed	64	64	64	64	64	64	64	64	64	64	64	56	64	64	49	64	58	44	64	53	39	64	45	32	64	39	26	57	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	47	60	56	40	55	49	35	49	44	30
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	50	60	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	45	61	54	38	61	47	33	56	41	44	49	36	39	44	48	34
			Exposed	61	61	61	61	61	56	61	61	51	61	61	46	61	59	41	61	53	38	61	49	35	57	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	62	51	64	56	47	64	48	39	61	41	34	54	35	44	47	47	39	42	41	34	37	37	30
			Exposed	64	64	56	64	60	50	64	54	45	64	49	40	64	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	61	70	70	54	70	58	43	70	49	36	70	43	30	64	37	26	56	33	34	50	44	30
			Exposed	70	70	70	70	70	59	70	66	51	70	59	45	70	53	39	70	49	35	70	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	55	66	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	66	66	66	66	66	66	66	66	65	66	66	56	66	66	50	66	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23
50	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	38	38
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	37	46	45	32	46	40	43	46	36	38
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	46	38	49	41	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	45	38	50	39	33	50	34	43	46	46	38	41	41	34
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	42	53	50	36
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	41	53	47	34	53	42	29	53	37	25	53	33	34
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	37	50	46	32	45	41	28
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	35	46	43	46	46	38	41
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	41	46	46	35	46	42	45	46	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	49	40	50	42	35	48	37	46	46	33	41	44	44	36
			Exposed	50	50	50	50	50	50	50	50	50	50	50	48	50	50	44	50	48	40	50	44	36	50	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	45	53	51	37	53	45	31	53	39	27	53	35	36
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	53	44	53	53	39	53	45	32	53	39	26	53	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	40	50	49	35	49	44	30
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	51	38	51	47	33	51	41	44	49	36	39	44	48	34
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	51	51	41	51	51	38	51	49	35	51	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	47	55	48	39	53	41	34	51	35	44	47	47	39	42	41	34	37	37	30
			Exposed	55	55	55	55	55	50	55	54	45	55	49	40	55	44	37	55	40	33	55	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	43	58	49	36	58	43	30	58	37	26	56	33	34	50	44	30
			Exposed	58	58	58	58	58	58	58	58	51	58	58	45	58	53	39	58	49	35	58	45	31	58	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	46	55	54	38	52	47	33	46	41	28	41	37	37
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	45	55	55	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23

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UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	43	39	36	38
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	41	34
			Exposed	42	42	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	42	39	33	42	34	43	42	46	38	41	41	34
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	36
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	34	45	42	29	45	37	25	45	33	34
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	41	28
	C	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	35	39	39	46	39	38	41
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	45	39	37	39	39	48	34	39	43	~~30~~	34	38	~~27~~
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	35	42	37	46	41	33	41	39	44	36
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	37	47	42	32	40	42	42	35	37	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	37	45	45	31	45	39	27	45	35	36
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	39	45	45	32	45	39	26	45	33	35	45	44	30	44	39	27	39	35	~~24~~
		27-45	Interior	42	42	42	42	42	42	42	42	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	42	42	35	42	42	30
			Exposed	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	34	42	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	33	43	41	44	43	36	39	43	48	34
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	38	43	43	35	43	41	44	43	35	38	42	46	33	37	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	41	34	45	35	44	43	47	39	42	41	34	37	37	~~30~~
			Exposed	47	47	47	47	47	47	47	47	45	47	47	40	47	44	37	47	40	33	47	37	46	47	31	39	41	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	36	49	43	30	49	37	26	49	33	34	48	44	30
			Exposed	49	49	49	49	49	49	49	49	49	49	49	45	49	49	39	49	49	35	49	45	31	49	38	26	49	32	34	48	42	29	42	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	38	47	47	33	46	41	28	41	37	37
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	40	47	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	~~23~~
70	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	43	34	34	38
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	34	43	37	46	38	37	41	34
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	29	39	37	25	39	33	34
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	28
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	46	34	34	41
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	45	34	34	39	34	48	34	34	43	~~30~~	34	38	~~27~~
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	46	36	33	41	35	44	36
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	47	37	32	40	37	42	35	37	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	31	39	39	27	39	35	36
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	32	39	39	26	39	33	35	39	44	30	39	39	27	39	35	~~24~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	37	37	36	32	32	32	43	28
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	37	44	37	36	39	37	48	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	44	37	35	38	37	46	33	37	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	34	40	35	44	39	47	39	37	41	34	36	37	~~30~~
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	33	40	37	46	40	31	39	40	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	43	43	43	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	30	43	37	26	43	33	34	43	44	30
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	31	43	38	26	43	32	34	43	42	29	42	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	33	41	41	28	41	37	37
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	33	41	41	28	39	35	35	34	46	30	46	41	26	41	36	~~23~~
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	43	30	30	38
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	43	32	46	38	32	41	34
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	44	51	51	38	51	49	34
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	42
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	30	30	41
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	30	30	39	30	45	34	30	43	~~30~~	30	38	~~27~~
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	46	32	32	41	32	44	36
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	47	32	32	40	32	42	35	32	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	41	51	51	36
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	40	51	50	35	51	44	30	51	39	27	51	35	~~24~~
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	37	49	49	32	48	43	28
	D	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	44	33	33	39	33	48	34
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	44	33	33	38	33	46	33	33	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	35	44	35	47	39	34	41	34	33	37	~~30~~
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	46	36	31	39	36	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	30	38	37	26	38	33	34	38	44	30
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	31	38	38	26	38	32	34	38	42	29	38	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	43	54	54	37
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	42	54	53	35	52	46	30	46	41	26	41	36	~~23~~

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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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	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	38
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	43	38	29	41	34
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	46	34
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42
	C	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	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
			Exposed	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	40	34	26	40	~~30~~	26	38	~~27~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	29	41	29	43	36
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	29	40	29	42	35	29	37	~~30~~	43	32	~~27~~	43	~~29~~	~~24~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	35	46	44	30	46	39	27	46	35	~~24~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	37	44	44	32	44	43	28
	D	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	44	29	29	39	29	44	34
			Exposed	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	38	29	44	33	29	40	~~29~~	44	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	44	32	47	39	31	41	34	30	37	~~30~~
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	46	32	31	39	32	41	34	32	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	47	51	51	39	51	50	34	51	44	30
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	39	51	49	34	51	42	29	51	37	25	51	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	43	48	48	37
			Exposed	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	42	48	48	35	48	47	30	46	41	26	41	37	~~23~~
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	36
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	39	38	47	39	34
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	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	42	42	34
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	36
			Exposed	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	36	34	24	36	~~30~~	24	36	~~27~~
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	39	47	39	36
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	39	47	39	35	47	37	~~30~~	39	32	~~27~~	39	~~29~~	~~24~~
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	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
			Exposed	42	42	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	42	42	35	42	42	30	42	39	27	42	35	~~24~~
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	32	40	40	28
	D	0-7	Interior	26	26	26	26	26	26	26	26	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	40	34
			Exposed	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	38	26	40	33	26	40	~~29~~	40	36	~~25~~	40	~~32~~	~~23~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	43	39	29	41	34	28	37	~~30~~
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	29	39	29	41	34	29	35	~~29~~	43	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	34	46	44	30
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	34	46	42	29	46	37	25	46	33	~~22~~	46	~~29~~	~~20~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	37
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	35	44	44	30	44	41	26	41	37	~~23~~

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	73	87	87	63	87	81	48	87	64	40	84	51	34	68	42	30	56	37	26	47	33	23
			Exposed	87	87	86	87	87	70	87	87	59	87	84	50	87	72	43	87	62	39	87	55	36	69	43	30	54	36	26	44	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	75	80	80	63	80	76	53	80	55	41	73	42	35	60	36	30	51	32	26	43	28	23	38	25	21
			Exposed	80	80	75	80	80	60	80	70	49	80	57	42	80	48	38	71	42	34	64	38	31	51	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	58	75	58	43	75	45	35	74	39	30	63	34	25	54	30	22
			Exposed	75	75	75	75	75	75	75	75	75	75	75	61	75	67	50	75	57	42	75	49	38	75	39	30	61	33	25	51	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	56	71	65	45	66	52	37	52	42	32	42	38	28
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	65	71	71	55	71	70	48	68	53	38	50	42	31	40	36	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	87	87	87	87	87	80	87	87	66	87	87	56	87	81	48	87	70	42	87	61	38	77	47	32	60	39	28	49	34	24	41	30	21	36	26	18	32	23	25
			Exposed	87	80	48	87	67	41	87	57	37	80	49	33	68	43	30	59	39	27	52	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	80	80	80	80	80	69	80	80	56	80	65	46	80	55	41	78	46	37	70	41	34	56	35	29	46	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	80	54	40	76	45	36	66	39	32	58	35	29	51	32	26	45	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	70	75	75	57	75	64	48	75	55	41	75	42	33	67	36	27	56	31	22	47	27	19	41	24	16	36	21	22
			Exposed	75	75	57	75	61	46	75	51	39	75	43	34	75	39	30	66	35	27	59	32	24	48	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	54	71	59	41	57	46	34	44	39	29	38	34	24	33	30	21	30	27	18
			Exposed	71	71	71	71	71	60	71	71	50	71	62	42	67	52	38	56	45	34	47	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	87	87	71	87	87	59	87	84	50	87	71	43	87	61	39	87	53	35	76	47	32	58	38	27	46	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	87	61	38	84	51	34	71	44	31	61	39	28	52	36	25	46	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	80	80	61	80	70	49	80	57	42	80	48	37	70	41	34	62	37	31	55	34	28	45	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	70	41	34	60	37	30	53	33	27	46	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	75	75	75	75	75	75	75	75	60	75	66	49	75	55	42	75	47	37	75	41	33	66	35	26	54	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	75	55	41	75	45	36	75	40	31	68	36	27	60	32	24	53	30	21	47	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	64	71	71	54	71	68	47	71	58	41	55	45	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	71	71	54	71	65	45	70	55	39	58	46	34	48	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
10	B	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	48	62	62	40	62	51	34	62	42	30	56	37	26	47	33	23
			Exposed	62	62	62	62	62	62	62	62	59	62	62	50	62	62	43	62	62	39	62	55	36	62	43	30	54	36	26	44	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	53	62	55	41	62	42	35	60	36	30	51	32	26	43	28	23	38	25	21
			Exposed	62	62	62	62	62	60	62	62	49	62	57	42	62	48	38	62	42	34	62	38	31	51	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	58	43	67	45	35	67	39	30	63	34	25	54	30	22
			Exposed	67	67	67	67	67	67	67	67	67	67	67	61	67	67	50	67	57	42	67	49	38	67	39	30	61	33	25	51	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	64	45	64	52	37	52	42	32	42	38	28
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	55	64	64	48	64	53	38	50	42	31	40	36	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	56	62	62	48	62	62	42	62	61	38	62	47	32	60	39	28	49	34	24	41	30	21	36	26	18	32	23	25
			Exposed	62	62	48	62	62	41	62	57	37	62	49	33	62	43	30	59	39	27	52	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	62	62	62	62	62	62	62	62	56	62	62	46	62	55	41	62	46	37	62	41	34	56	35	29	46	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	62	54	40	62	45	36	62	39	32	58	35	29	51	32	26	45	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	57	67	64	48	67	55	41	67	42	33	67	36	27	56	31	22	47	27	19	41	24	16	36	21	22
			Exposed	67	67	57	67	61	46	67	51	39	67	43	34	67	39	30	66	35	27	59	32	24	48	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	54	64	59	41	57	46	34	44	39	29	38	34	24	33	30	21	30	27	18
			Exposed	64	64	64	64	64	60	64	64	50	64	62	42	64	52	38	56	45	34	47	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	62	62	62	62	62	59	62	62	50	62	62	43	62	61	39	62	53	35	62	47	32	58	38	27	46	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	62	61	38	62	51	34	62	44	31	61	39	28	52	36	25	46	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	62	62	61	62	62	49	62	57	42	62	48	37	62	41	34	62	37	31	55	34	28	45	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	62	41	34	60	37	30	53	33	27	46	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	69	69	69	69	69	69	69	69	60	69	66	49	69	55	42	69	47	37	69	41	33	66	35	26	54	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	69	55	41	69	45	36	69	40	31	68	36	27	60	32	24	53	30	21	47	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	65	65	65	65	65	65	65	65	65	65	65	64	65	65	54	65	65	47	65	58	41	55	45	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	65	65	54	65	65	45	65	55	39	58	46	34	48	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
20	B	0-7	Interior	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	34	43	42	30	43	37	26	43	33	23
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	36	43	43	30	43	36	26	43	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	42	35	43	36	30	43	32	26	43	28	23	38	25	21
			Exposed	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	34	43	38	31	43	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	43	53	45	35	53	39	30	53	34	25	53	30	22
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	42	53	49	38	53	39	30	53	33	25	51	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45	50	50	37	50	42	32	42	38	28
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	38	50	42	31	40	36	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	43	32	43	39	28	43	34	24	41	30	21	36	26	18	32	23	25
			Exposed	43	43	43	43	43	41	43	43	37	43	43	33	43	43	30	43	39	27	43	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	37	43	41	34	43	35	29	43	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	43	43	40	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	41	53	42	33	53	36	27	53	31	22	47	27	19	41	24	16	36	21	22
			Exposed	53	53	53	53	53	46	53	51	39	53	43	34	53	39	30	53	35	27	53	32	24	48	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	41	50	46	34	44	39	29	38	34	24	33	30	21	30	27	18
			Exposed	50	50	50	50	50	50	50	50	50	50	50	42	50	50	38	50	45	34	47	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	43	38	27	43	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	43	43	38	43	43	34	43	43	31	43	39	28	43	36	25	43	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	43	43	43	43	43	43	43	43	42	43	43	37	43	41	34	43	37	31	43	34	28	43	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	43	41	34	43	37	30	43	33	27	43	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	55	55	55	55	55	55	55	55	55	55	55	49	55	55	42	55	47	37	55	41	33	55	35	26	54	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	55	55	41	55	45	36	55	40	31	55	36	27	55	32	24	53	30	21	47	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	41	52	45	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	52	52	52	52	52	45	52	52	39	52	46	34	48	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	34	42	42	30	42	37	26	42	33	23
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	36	42	42	30	42	36	26	42	32	22	38	28	19	33	24	26	30	22	23
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	42	35	43	36	30	43	32	26	43	28	23	38	25	21
			Exposed	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	34	43	38	31	43	32	27	42	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	35	43	39	30	43	34	25	43	30	22
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	39	30	43	33	25	43	29	21	43	25	17	38	22	15	34	20	20
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	32	41	38	28
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	31	40	36	26	35	32	23	31	28	19	28	25	17			
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	32	42	39	28	42	34	24	41	30	21	36	26	18	32	23	25
			Exposed	42	42	42	42	42	41	42	42	37	42	42	33	42	42	30	42	39	27	42	35	25	41	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	37	43	41	34	43	35	29	43	30	24	39	26	21	34	22	18	30	20	25	27	26	22
			Exposed	43	43	40	43	43	36	43	39	32	43	35	29	43	32	26	43	29	24	41	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	42	33	43	36	27	43	31	22	43	27	19	41	24	16	36	21	22
			Exposed	43	43	43	43	43	43	43	43	39	43	43	34	43	39	30	43	35	27	43	32	24	43	27	19	40	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	34	41	39	29	38	34	24	33	30	21	30	27	18
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	34	41	40	30	38	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	32	43	38	27	43	33	23	39	28	20	34	25	27	30	22	23	27	19	21
			Exposed	43	43	38	43	43	34	43	43	31	43	39	28	43	36	25	43	32	23	41	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	43	43	43	43	43	43	43	43	42	43	43	37	43	41	34	43	37	31	43	34	28	43	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	43	41	34	43	37	30	43	33	27	43	30	24	41	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	37	46	41	33	46	35	26	46	30	22	45	26	18	39	23	15	34	20	21	30	27	18
			Exposed	46	46	41	46	45	36	46	40	31	46	36	27	46	32	24	46	30	21	46	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	33	42	38	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	44	44	44	44	44	44	44	44	39	44	44	34	44	41	31	41	37	27	38	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	30	35	35	26	35	33	23
			Exposed	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	32	22	35	28	19	33	24	26	30	22	23
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	36	30	37	32	26	36	28	23	35	25	21
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	32	27	37	28	23	36	24	20	32	21	26	28	18	23	25	25	20
		20-27	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	34	25	37	30	22
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	30	37	33	25	37	29	21	37	25	17	37	22	15	34	20	20
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	26	35	32	23	31	28	19	28	25	17
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	34	24	35	30	21	35	26	18	32	23	25
			Exposed	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	27	35	35	25	35	30	21	35	26	27	30	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	35	29	37	30	24	35	26	21	34	22	18	30	20	25	27	26	22
			Exposed	37	37	37	37	37	36	37	37	32	37	35	29	37	32	26	37	29	24	37	27	22	35	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	36	27	37	31	22	37	27	19	37	24	16	36	21	22
			Exposed	37	37	37	37	37	37	37	37	37	37	37	34	37	37	30	37	35	27	37	32	24	37	27	19	37	23	16	35	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	29	35	34	24	33	30	21	30	27	18
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	30	35	34	25	33	29	21	28	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	27	37	33	23	37	28	20	34	25	27	30	22	23	27	19	21
			Exposed	37	37	37	37	37	34	37	37	31	37	37	28	37	36	25	37	32	23	37	30	21	34	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	39	39	39	39	39	39	39	39	39	39	39	37	39	39	34	39	37	31	39	34	28	39	29	24	38	25	20	33	21	27	29	19	23	25	25	21	22	22	18
			Exposed	39	39	34	39	37	30	39	33	27	39	30	24	39	27	22	37	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	33	39	35	26	39	30	22	39	26	18	39	23	15	34	20	21	30	27	18
			Exposed	39	39	39	39	39	36	39	39	31	39	36	27	39	32	24	39	30	21	39	27	19	39	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	37	28	36	33	23	32	28	20	28	25	17	25	22	23
			Exposed	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	37	27	37	34	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
50	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	22	28	28	19	28	24	26	28	22	23
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	26	31	28	23	30	25	21
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	28	23	31	24	20	31	21	26	28	18	23	25	25	20
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	25	32	30	22
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	25	32	29	21	32	25	17	32	22	15	32	20	20
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	23	30	28	19	28	25	17
	C	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	21	28	26	18	28	23	25
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	28	28	21	28	26	27	28	22	24	27	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	30	24	30	26	21	29	22	18	28	20	25	27	26	22
			Exposed	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	29	24	31	27	22	31	23	19	30	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	27	32	32	27	32	31	22	32	27	19	32	24	16	32	21	22
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	32	24	32	27	19	32	23	16	32	20	21	30	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	24	30	30	21	30	27	18
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	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	31	23	31	28	20	31	25	27	30	22	23	27	19	21
			Exposed	31	31	31	31	31	31	31	31	31	31	31	28	31	31	25	31	31	23	31	30	21	31	25	27	29	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	29	24	32	25	20	31	21	27	29	19	23	25	25	21	22	22	18
			Exposed	34	34	34	34	34	30	34	33	27	34	30	24	34	27	22	34	24	20	34	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	26	34	30	22	34	26	18	34	23	15	34	20	21	30	27	18
			Exposed	34	34	34	34	34	34	34	34	31	34	34	27	34	32	24	34	30	21	34	27	19	34	23	16	33	20	20	29	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28	33	33	23	32	28	20	28	25	17	25	22	23
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	33	25	32	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	26	24	22	23
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	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	26	25	21
			Exposed	26	26	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	26	24	20	26	21	26	26	18	23	25	25	20
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	17	27	22	15	27	20	20
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	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	26	26	19	26	25	17
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	23	25
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	27	24	22	24	24	19	21	23	26	18	21	23	~~16~~
		7-20	Interior	26	26	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	22	18	25	20	25	24	26	22
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	23	19	26	19	24	26	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	27	19	27	24	16	27	21	22
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	19	27	23	16	27	20	21	27	27	18	27	24	~~16~~	24	21	~~14~~
		27-45	Interior	26	26	26	26	26	26	26	26	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	18
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	25	17	25	22	22	22	20	19	19	26	17
	D	0-7	Interior	26	26	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	26	26	20	26	25	27	26	22	23	26	19	21
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	25	27	26	21	23	25	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	24	28	25	20	27	21	27	26	19	23	25	25	21	22	22	18
			Exposed	29	29	29	29	29	29	29	29	27	29	29	24	29	27	22	29	24	20	29	22	19	29	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	26	18	30	23	15	30	20	21	30	27	18
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		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	23	29	28	20	28	25	17	25	22	23
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	29	20	27	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
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		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	26	22	18	23	22	25	20
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	17	24	22	15	24	20	20
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	25
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		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	20	25	22	26	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	19	24	22	25	21	22	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	21	22
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	19	24	23	16	24	20	21	24	27	18	24	24	~~16~~	24	21	~~14~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	17	22	22	22	22	20	19	19	26	17
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	23	27	23	22	23	23	19	21
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	27	23	21	23	23	19	20	22	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	21	27	24	19	23	23	25	21	22	22	18
			Exposed	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	24	20	25	22	19	25	19	24	25	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	18	26	23	15	26	20	21	26	27	18
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	21	26	26	26	19	26	23	16	26	20	20	26	26	18	25	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	17	25	22	23
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	25	17	24	21	21	21	19	18	18	25	16	25	22	~~14~~
80	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	26	18	18	23
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	26	20	18	23	20	25	20
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	20	20
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	25
			Exposed	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	26	18	18	23	~~16~~
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	25	19	26	22
			Exposed	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	19	24	20	25	21	20	22	18	20	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	21	22
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	20	21	21	27	18	21	24	~~16~~	21	21	~~14~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18
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	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	27	20	20	23	20	19	21
			Exposed	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	23	20	19	20	20	25	~~17~~	20	22	~~15~~	26	19	~~14~~
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	27	21	19	23	21	25	21	20	22	18
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	19	22	19	24	22	25	20	21	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	18	23	23	15	23	20	21	23	27	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	23	19	23	23	16	23	20	20	23	26	18	23	22	~~15~~	22	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	23
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	21	21	21	19	18	18	25	16	25	22	~~14~~

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	26	17	17	23	17	25	20
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	20
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	24	16	16	21	16	24	18	16	23	~~16~~
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	26	22
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	24	17	25	21	17	22	18	17	20	~~16~~	26	~~17~~	~~14~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	22
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	21	19	27	18	19	24	~~16~~	19	21	~~14~~
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	22	27	27	19	27	26	17
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	27	18	18	23	18	18	21
			Exposed	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	23	18	18	20	18	25	~~17~~	18	22	~~15~~	26	19	~~14~~
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	27	19	19	23	19	25	21	18	22	18
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	24	19	25	20	19	21	~~18~~	19	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	20	21	21	27	18
			Exposed	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	20	20	21	26	18	21	22	~~15~~	21	20	~~14~~	20	~~18~~	~~12~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	23
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	21	20	19	18	18	25	16	25	22	~~14~~
100	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22	14	14	22
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23	16	24	20
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22
			Exposed	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	22	14	14	21	14	22	18	14	22	~~16~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	24	22
			Exposed	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	24	21	16	22	18	16	20	~~16~~	24	~~17~~	~~14~~	24	~~17~~	~~14~~
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	22
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21	25	25	18	25	24	~~16~~	25	21	~~14~~
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	19	24	24	17
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23	16	16	21
			Exposed	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	23	16	16	20	16	24	~~17~~	16	22	~~15~~	24	19	~~14~~
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	26	17	17	23	17	25	21	17	22	18
			Exposed	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	25	20	17	21	~~18~~	17	19	~~15~~	25	~~16~~	~~14~~	22	~~15~~	~~12~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	21	19	27	18
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	20	19	26	18	19	22	~~15~~	19	20	~~14~~	19	~~18~~	~~12~~
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	23
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	27	18	27	25	16	25	22	~~14~~

*	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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	133	138	138	70	138	131	58	138	82	50	135	63	44	103	56	39
			Exposed	138	138	138	138	138	138	138	138	138	138	138	134	138	138	96	138	138	67	138	133	60	138	84	51	133	61	44	90	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	59	126	61	51	126	54	44	77	47	39	64	42	35
			Exposed	126	126	126	126	126	126	126	126	126	126	126	126	126	126	64	126	126	58	126	64	53	126	54	45	75	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	60	119	65	50	119	57	43	119	51	37
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	67	51	119	56	42	118	49	35	78	42	29	64	37	26	57	33	34
		27-45	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	64	113	100	54	113	63	47
			Exposed	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	65	113	90	53	113	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	132	138	138	87	138	138	65	138	106	55	138	67	47	116	57	40	74	50	35	60	44	31	53	39	42
			Exposed	138	138	132	138	138	78	138	135	62	138	115	56	138	83	51	137	65	46	132	60	42	76	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	62	126	126	57	126	58	48	85	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	126	126	126	126	126	61	126	70	54	126	60	49	126	54	45	83	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	56	119	60	46	119	52	38	88	46	32	71	40	28	61	36	37
			Exposed	119	119	119	119	119	119	119	119	119	119	119	57	119	65	51	119	59	45	119	54	40	89	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	91	113	113	58	113	65	48	64	57	41	56	50	36	50	45	31
			Exposed	113	113	113	113	113	113	113	113	113	113	113	112	113	113	65	113	113	57	113	77	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	138	138	138	138	138	138	138	138	134	138	138	92	138	138	65	138	132	59	138	102	54	137	65	46	102	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	138	138	65	138	131	58	138	89	52	138	67	47	132	60	42	98	55	39	74	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	126	126	126	126	126	126	126	126	126	126	126	63	126	126	57	126	63	52	126	58	48	82	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	126	126	57	126	62	51	126	55	46	85	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	63	119	119	55	119	59	44	119	50	36	82	44	30	65	38	26	57	34	35	51	45	31
			Exposed	119	119	119	119	119	60	119	73	52	119	60	46	119	55	40	119	50	36	88	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	86	113	113	56	113	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	113	113	113	113	113	113	113	113	70	113	113	58	113	79	51	113	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
10	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	70	102	102	58	102	82	50	102	63	44	102	56	39
			Exposed	102	102	102	102	102	102	102	102	102	102	102	102	102	102	96	102	102	67	102	102	60	102	84	51	102	61	44	90	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	59	103	61	51	103	54	44	77	47	39	64	42	35
			Exposed	103	103	103	103	103	103	103	103	103	103	103	103	103	103	64	103	103	58	103	64	53	103	54	45	75	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	60	108	65	50	108	57	43	108	51	37
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	65	108	67	51	108	56	42	108	49	35	78	42	29	64	37	26	57	33	34
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	64	102	100	54	102	63	47
			Exposed	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	65	102	90	53	102	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	87	102	102	65	102	102	55	102	67	47	102	57	40	74	50	35	60	44	31	53	39	42
			Exposed	102	102	102	102	102	78	102	102	62	102	102	56	102	83	51	102	65	46	102	60	42	76	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	62	103	103	57	103	58	48	85	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	103	103	103	103	103	61	103	70	54	103	60	49	103	54	45	83	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	56	108	60	46	108	52	38	88	46	32	71	40	28	61	36	37
			Exposed	108	108	108	108	108	108	108	108	108	108	108	57	108	65	51	108	59	45	108	54	40	89	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	91	102	102	58	102	65	48	64	57	41	56	50	36	50	45	31
			Exposed	102	102	102	102	102	102	102	102	102	102	102	102	102	102	65	102	102	57	102	77	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	92	102	102	65	102	102	59	102	102	54	102	65	46	102	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	102	102	65	102	102	58	102	89	52	102	67	47	102	60	42	98	55	39	74	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	63	103	103	57	103	63	52	103	58	48	82	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	103	103	57	103	62	51	103	55	46	85	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	63	111	111	55	111	59	44	111	50	36	82	44	30	65	38	26	57	34	35	51	45	31
			Exposed	111	111	111	111	111	60	111	73	52	111	60	46	111	55	40	111	50	36	88	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	86	104	104	56	104	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	104	104	104	104	104	104	104	104	70	104	104	58	104	79	51	104	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
20	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	70	72	72	58	72	72	50	72	63	44	72	56	39
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	67	72	72	60	72	72	51	72	61	44	72	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	59	72	61	51	72	54	44	72	47	39	64	42	35
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	60	85	65	50	85	57	43	85	51	37
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	65	85	67	51	85	56	42	85	49	35	78	42	29	64	37	26	57	33	34
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	64	81	81	54	81	63	47
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	65	81	81	53	81	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	55	72	67	47	72	57	40	72	50	35	60	44	31	53	39	42
			Exposed	72	72	72	72	72	72	72	72	62	72	72	56	72	72	51	72	65	46	72	60	42	72	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	62	72	72	57	72	58	48	72	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	72	72	72	72	72	61	72	70	54	72	60	49	72	54	45	72	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	56	85	60	46	85	52	38	85	46	32	71	40	28	61	36	37
			Exposed	85	85	85	85	85	85	85	85	85	85	85	57	85	65	51	85	59	45	85	54	40	85	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	58	81	65	48	64	57	41	56	50	36	50	45	31
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	65	81	81	57	81	77	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	72	65	46	72	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	72	72	65	72	72	58	72	72	52	72	67	47	72	60	42	72	55	39	72	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	63	72	72	57	72	63	52	72	58	48	72	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	72	72	57	72	62	51	72	55	46	72	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	63	89	89	55	89	59	44	89	50	36	82	44	30	65	38	26	57	34	35	51	45	31
			Exposed	89	89	89	89	89	60	89	73	52	89	60	46	89	55	40	89	50	36	88	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	56	85	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	85	85	85	85	85	85	85	85	70	85	85	58	85	79	51	85	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	58	70	70	50	70	63	44	70	56	39
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70	70	60	70	70	51	70	61	44	70	53	38	64	46	33	56	41	44	50	36	39
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	59	72	61	51	72	54	44	72	47	39	64	42	35
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	60	70	65	50	70	57	43	70	51	37
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	67	51	70	56	42	70	49	35	70	42	29	64	37	26	57	33	34
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	54	67	63	47
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	53	67	67	53	67	61	45	59	53	38	52	47	33	46	42	28
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	55	70	67	47	70	57	40	70	50	35	60	44	31	53	39	42
			Exposed	70	70	70	70	70	70	70	70	62	70	70	56	70	70	51	70	65	46	70	60	42	70	50	36	59	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	62	72	72	57	72	58	48	72	50	41	66	43	36	58	38	31	51	33	42	45	45	37
			Exposed	72	72	72	72	72	61	72	70	54	72	60	49	72	54	45	72	49	41	71	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	56	70	60	46	70	52	38	70	46	32	70	40	28	61	36	37
			Exposed	70	70	70	70	70	70	70	70	70	70	70	57	70	65	51	70	59	45	70	54	40	70	46	32	68	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	65	48	64	57	41	56	50	36	50	45	31
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	65	67	67	57	67	67	51	64	58	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	72	54	72	65	46	72	55	39	67	48	34	57	42	45	51	37	39	45	33	35
			Exposed	72	72	65	72	72	58	72	72	52	72	67	47	72	60	42	72	55	39	72	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	63	72	72	57	72	63	52	72	58	48	72	49	40	64	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	72	72	57	72	62	51	72	55	46	72	50	41	72	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	63	74	74	55	74	59	44	74	50	36	74	44	30	65	38	26	57	34	35	51	45	31
			Exposed	74	74	74	74	74	60	74	73	52	74	60	46	74	55	40	74	50	36	74	46	32	66	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	56	71	63	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	71	71	71	71	71	71	71	71	70	71	71	58	71	71	51	71	62	46	64	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	58	44	58	56	39
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	44	58	53	38	58	46	33	56	41	44	50	36	39
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	51	61	54	44	61	47	39	59	42	35
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	54	45	61	46	38	61	40	33	54	35	44	47	31	39	42	42	34
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	57	43	60	51	37
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	51	60	56	42	60	49	35	60	42	29	60	37	26	57	33	34
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	47
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	45	57	53	38	52	47	33	46	42	28			
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	47	58	57	40	58	50	35	58	44	31	53	39	42
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	51	58	58	46	58	58	42	58	50	36	58	43	31	51	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	57	61	58	48	61	50	41	59	43	36	57	38	31	51	33	42	45	45	37
			Exposed	61	61	61	61	61	61	61	61	54	61	60	49	61	54	45	61	49	41	61	45	37	58	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	46	60	52	38	60	46	32	60	40	28	60	36	37
			Exposed	60	60	60	60	60	60	60	60	60	60	60	57	60	60	51	60	59	45	60	54	40	60	46	32	60	39	27	58	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	48	57	57	41	56	50	36	50	45	31
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	51	57	57	42	55	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	59	62	62	54	62	62	46	62	55	39	62	48	34	57	42	45	51	37	39	45	33	35
			Exposed	62	62	62	62	62	58	62	62	52	62	62	47	62	60	42	62	55	39	62	50	35	58	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	63	66	66	57	66	63	52	66	58	48	66	49	40	63	42	35	55	36	45	48	32	40	43	42	35	38	37	31
			Exposed	66	66	57	66	62	51	66	55	46	66	50	41	66	45	37	63	41	34	58	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	63	64	64	55	64	59	44	64	50	36	64	44	30	64	38	26	57	34	35	51	45	31
			Exposed	64	64	64	64	64	60	64	64	52	64	60	46	64	55	40	64	50	36	64	46	32	64	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	56	61	61	47	61	55	39	53	48	34	47	42	29	42	38	38
			Exposed	61	61	61	61	61	61	61	61	61	61	61	58	61	61	51	61	61	46	61	57	41	54	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23
50	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	39
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	44	47	47	38	47	46	33	47	41	44	47	36	39
		7-20	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	44	51	47	39	50	42	35
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	46	38	51	40	33	51	35	44	47	31	39	42	42	34
		20-27	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	43	52	51	37
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	52	52	42	52	49	35	52	42	29	52	37	26	52	33	34
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	45	50	50	38	50	47	33	46	42	28
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	40	47	47	35	47	44	31	47	39	42
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	42	47	47	36	47	43	31	47	37	40	45	33	35	39	43	31	35	39	27
		7-20	Interior	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	50	41	51	43	36	49	38	31	47	33	42	45	45	37
			Exposed	51	51	51	51	51	51	51	51	51	51	51	49	51	51	45	51	49	41	51	45	37	51	38	32	50	33	41	43	43	35	38	37	31	33	33	27	45	29	24
		20-27	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	46	52	52	38	52	46	32	52	40	28	52	36	37
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	52	52	45	52	52	40	52	46	32	52	39	27	52	34	35	51	45	31	45	40	27	40	35	24
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	41	50	50	36	50	45	31
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	42	50	49	35	48	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	39	52	48	34	52	42	45	51	37	39	45	33	35
			Exposed	52	52	52	52	52	52	52	52	52	52	52	47	52	52	42	52	52	39	52	50	35	52	42	45	50	36	39	43	31	34	38	41	29	33	37	26	44	32	23
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	48	56	49	40	54	42	35	52	36	45	48	32	40	43	42	35	38	37	31
			Exposed	57	57	57	57	57	51	57	55	46	57	50	41	57	45	37	57	41	34	57	38	31	49	32	40	42	41	34	36	36	30	32	31	26	42	28	23	37	25	20
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	44	56	50	36	56	44	30	56	38	26	56	34	35	51	45	31
			Exposed	56	56	56	56	56	56	56	56	52	56	56	46	56	55	40	56	50	36	56	46	32	56	39	26	56	33	34	49	43	30	43	38	26	38	33	23	33	30	20
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	47	53	53	39	53	48	34	47	42	29	42	38	38
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	51	53	53	46	53	53	41	53	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	23

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	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
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	44	40	36	39
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	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	43	42	35
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	40	33	43	35	44	43	31	39	42	42	34
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	37
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	35	46	42	29	46	37	26	46	33	34
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	33	43	42	28
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	31	40	39	42
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	31	40	37	40	40	33	35	39	43	31	35	39	~~27~~
		7-20	Interior	43	43	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	43	43	36	43	38	31	42	33	42	40	45	37
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	37	43	38	32	43	33	41	43	43	35	38	37	31	33	33	~~27~~	45	~~29~~	~~24~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	46	32	46	40	28	46	36	37
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	40	46	46	32	46	39	27	46	34	35	46	45	31	45	40	27	40	35	~~24~~
		27-45	Interior	43	43	43	43	43	43	43	43	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	43	43	36	43	43	31
			Exposed	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	35	43	43	29	42	37	38	37	33	33	33	44	29
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	34	44	42	45	44	37	39	44	33	35
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	39	44	44	35	44	42	45	44	36	39	43	31	34	38	41	~~29~~	33	37	~~26~~	44	32	~~23~~
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	40	48	42	35	46	36	45	44	32	40	43	42	35	38	37	31
			Exposed	48	48	48	48	48	48	48	48	46	48	48	41	48	45	37	48	41	34	48	38	31	48	32	40	42	41	34	36	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	36	50	44	30	50	38	26	50	34	35	50	45	31
			Exposed	50	50	50	50	50	50	50	50	50	50	50	46	50	50	40	50	50	36	50	46	32	50	39	26	50	33	34	49	43	30	43	38	26	38	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34	47	42	29	42	38	38
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	41	48	48	34	46	42	28	40	36	36	35	32	31	31	42	27	42	37	~~23~~
70	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	44	35	35	39
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	35	44	37	31	39	37	42	34
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	29	40	37	26	40	33	34
		27-45	Interior	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
			Exposed	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	33	38	38	28
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	42
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	40	35	33	35	35	43	31	35	39	~~27~~
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	33	42	36	45	37
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	33	41	37	43	35	37	37	31	33	33	~~27~~	45	~~29~~	~~24~~
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	32	40	40	28	40	36	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	32	40	39	27	40	34	35	40	45	31	40	40	27	40	35	~~24~~
		27-45	Interior	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	38	38	31
			Exposed	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	35	38	38	29	38	37	38	37	33	33	33	44	29
	D	0-7	Interior	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	34	38	38	45	38	37	39	38	33	35
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	45	38	36	39	38	31	34	38	41	~~29~~	33	37	~~26~~	44	32	~~23~~
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	35	41	36	45	40	32	40	38	42	35	37	37	31
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	34	41	38	31	41	32	40	41	41	34	36	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	36	44	44	30	44	38	26	44	34	35	44	45	31
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	36	44	44	32	44	39	26	44	33	34	44	43	30	43	38	26	38	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	34	41	41	29	41	38	38
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	34	41	41	28	40	36	36	35	32	31	31	42	27	42	37	~~23~~
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	44	30	30	39
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	44	33	31	39	33	42	34
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	29	35	35	26	35	33	34
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	42
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	30	30	35	30	43	31	30	39	~~27~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	42	33	45	37
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	41	33	43	35	33	37	31	33	33	~~27~~	45	~~29~~	~~24~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	35	37
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	34	35	35	45	31	35	40	27	35	35	~~24~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	33	38	33	33	33	33	44	29
	D	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	45	34	34	39	34	33	35
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	45	34	34	39	34	31	34	34	41	~~29~~	33	37	~~26~~	44	32	~~23~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	45	36	32	40	35	42	35	34	37	31
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	32	40	36	41	34	36	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	30	39	38	26	39	34	35	39	45	31
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	32	39	39	26	39	33	34	39	43	30	39	38	26	38	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	37	38
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	28	37	36	36	35	32	31	31	42	27	42	37	~~23~~

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	41	27	27	39
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	44	29	29	39	29	42	34
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	34
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	41
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	40	27	27	35	27	41	31	27	39	~~27~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	42	29	44	37
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	41	29	43	35	29	37	31	29	33	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	37
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	31	35	31	45	31	31	40	27	31	35	~~24~~
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33	45	44	29
	D	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	30	30	39	30	30	35
			Exposed	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	39	30	30	34	30	41	~~29~~	30	37	~~26~~	44	32	~~23~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	45	33	32	40	32	42	35	31	37	31
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	32	40	33	41	34	33	36	~~30~~	32	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	34	35	35	45	31
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	26	35	33	34	35	43	30	35	38	26	35	33	~~23~~	33	~~30~~	~~20~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	33	38
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28	33	33	36	33	32	31	31	42	27	42	37	~~23~~
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37	24	24	37
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	40	27	27	39	27	40	34
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	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	43	43	34
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37
			Exposed	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	35	24	37	31	24	37	~~27~~
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	40	27	40	37
			Exposed	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	40	35	27	37	31	27	33	~~27~~	40	~~29~~	~~24~~
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	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
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	35	43	43	31	43	40	27	43	35	~~24~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	33	41	41	29			
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	41	27	27	39	27	27	35
			Exposed	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	39	27	27	34	27	41	~~29~~	27	37	~~26~~	41	32	~~23~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	44	29	29	40	29	42	35	29	37	31
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	40	29	41	34	29	36	~~30~~	29	31	~~26~~	42	~~28~~	~~23~~	37	~~25~~	~~20~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	26	31	31	35	31	45	31
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	34	31	43	30	31	38	26	31	33	~~23~~	31	~~30~~	~~20~~			
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	36	45	45	31	45	42	27	42	37	~~23~~			

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	61	73	73	53	73	68	40	73	53	33	70	43	29	57	35	25	47	31	22	39	28	19
			Exposed	73	73	72	73	73	59	73	73	49	73	70	42	73	60	36	73	52	33	73	46	30	57	36	25	45	30	22	37	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	63	67	67	52	67	63	44	67	46	34	61	35	29	50	30	25	42	27	22	36	23	19	32	21	26
			Exposed	67	67	62	67	67	50	67	58	41	67	48	35	67	40	32	60	35	29	53	32	26	43	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	48	63	48	36	63	38	30	62	32	25	53	28	21	45	25	18
			Exposed	63	63	63	63	63	63	63	63	62	63	63	51	63	56	42	63	47	35	63	41	31	63	32	25	51	28	21	43	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	47	60	54	37	55	43	31	43	35	27	35	31	23
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54	60	60	46	60	58	40	57	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	73	73	73	73	73	66	73	73	55	73	73	47	73	67	40	73	58	35	73	51	32	64	40	27	50	33	23	41	28	20	34	25	26	30	22	23	26	19	21
			Exposed	73	67	40	73	56	34	73	48	31	67	41	28	57	36	25	49	32	23	43	30	21	34	25	27	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	67	67	67	67	67	57	67	67	47	67	55	39	67	46	34	66	39	31	58	34	28	47	29	24	38	25	20	33	21	18	29	19	23	25	25	21	22	22	~~18~~
			Exposed	67	45	34	63	37	30	55	33	27	48	30	24	43	27	22	38	24	20	34	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	58	63	63	48	63	54	40	63	46	34	63	35	28	56	30	23	47	26	19	39	23	16	34	20	21	30	27	18
			Exposed	63	63	48	63	51	38	63	43	33	63	36	28	63	32	25	55	29	22	49	27	20	40	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	52	60	60	45	60	50	35	48	39	29	37	32	24	32	28	20	28	25	18	25	22	23
			Exposed	60	60	60	60	60	50	60	60	42	60	51	35	56	44	32	47	38	28	40	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	73	73	60	73	73	49	73	70	42	73	59	36	73	51	32	73	45	29	63	39	27	49	32	23	39	27	19	33	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	73	51	32	70	43	29	59	37	26	51	33	23	44	30	21	38	27	19	34	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	67	67	51	67	58	41	67	48	35	67	40	31	59	34	28	52	31	26	46	29	24	37	24	20	32	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	58	34	28	50	31	25	44	27	23	39	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	63	63	63	63	63	63	63	63	50	63	55	41	63	46	35	63	39	31	63	35	27	55	29	22	45	25	18	37	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	63	46	35	63	38	30	63	33	26	56	30	23	50	27	20	44	25	18	39	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	53	60	60	45	60	57	39	60	49	34	46	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	60	60	45	60	54	37	59	46	32	48	39	29	40	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
10	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	40	52	52	33	52	43	29	52	35	25	47	31	22	39	28	19
			Exposed	52	52	52	52	52	52	52	52	49	52	52	42	52	52	36	52	52	33	52	46	30	52	36	25	45	30	22	37	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	44	52	46	34	52	35	29	50	30	25	42	27	22	36	23	19	32	21	26
			Exposed	52	52	52	52	52	50	52	52	41	52	48	35	52	40	32	52	35	29	52	32	26	43	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	48	56	48	36	56	38	30	56	32	25	53	28	21	45	25	18
			Exposed	56	56	56	56	56	56	56	56	56	56	56	51	56	56	42	56	47	35	56	41	31	56	32	25	51	28	21	43	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	47	53	53	37	53	43	31	43	35	27	35	31	23
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	46	53	53	40	53	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	47	52	52	40	52	52	35	52	51	32	52	40	27	50	33	23	41	28	20	34	25	26	30	22	23	26	19	21
			Exposed	52	52	40	52	52	34	52	48	31	52	41	28	52	36	25	49	32	23	43	30	21	34	25	27	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	52	52	52	52	52	52	52	52	47	52	52	39	52	46	34	52	39	31	52	34	28	47	29	24	38	25	20	33	21	18	29	19	23	25	25	21	22	22	~~18~~
			Exposed	52	45	34	52	37	30	52	33	27	48	30	24	43	27	22	38	24	20	34	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	48	56	54	40	56	46	34	56	35	28	56	30	23	47	26	19	39	23	16	34	20	21	30	27	18
			Exposed	56	56	48	56	51	38	56	43	33	56	36	28	56	32	25	55	29	22	49	27	20	40	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	52	53	53	45	53	50	35	48	39	29	37	32	24	32	28	20	28	25	18	25	22	23
			Exposed	53	53	53	53	53	50	53	53	42	53	51	35	53	44	32	47	38	28	40	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	52	52	52	52	52	49	52	52	42	52	52	36	52	51	32	52	45	29	52	39	27	49	32	23	39	27	19	33	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	52	51	32	52	43	29	52	37	26	51	33	23	44	30	21	38	27	19	34	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	52	52	51	52	52	41	52	48	35	52	40	31	52	34	28	52	31	26	46	29	24	37	24	20	32	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	52	34	28	50	31	25	44	27	23	39	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	58	58	58	58	58	58	58	58	50	58	55	41	58	46	35	58	39	31	58	35	27	55	29	22	45	25	18	37	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	58	46	35	58	38	30	58	33	26	56	30	23	50	27	20	44	25	18	39	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	55	55	55	55	55	55	55	55	55	55	55	53	55	55	45	55	55	39	55	49	34	46	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	55	55	45	55	54	37	55	46	32	48	39	29	40	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
20	B	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	29	36	35	25	36	31	22	36	28	19
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	25	36	30	22	36	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	35	29	36	30	25	36	27	22	36	23	19	32	21	26
			Exposed	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	35	29	36	32	26	36	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	~~17~~
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	36	44	38	30	44	32	25	44	28	21	44	25	18
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	35	44	41	31	44	32	25	44	28	21	43	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	31	42	35	27	35	31	23
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	36	27	36	33	23	36	28	20	34	25	26	30	22	23	26	19	21
			Exposed	36	36	36	36	36	34	36	36	31	36	36	28	36	36	25	36	32	23	36	30	21	34	25	27	29	21	23	25	18	20	22	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	34	28	36	29	24	36	25	20	33	21	18	29	19	23	25	25	21	22	22	~~18~~
			Exposed	36	36	34	36	36	30	36	33	27	36	30	24	36	27	22	36	24	20	34	22	18	29	19	24	25	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	34	44	35	28	44	30	23	44	26	19	39	23	16	34	20	21	30	27	18
			Exposed	44	44	44	44	44	38	44	43	33	44	36	28	44	32	25	44	29	22	44	27	20	40	23	16	33	19	20	29	26	17	25	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	35	42	39	29	37	32	24	32	28	20	28	25	18	25	22	23
			Exposed	42	42	42	42	42	42	42	42	42	42	42	35	42	42	32	42	38	28	40	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	36	32	23	36	27	19	33	24	25	28	21	22	25	18	20	22	24	~~17~~
			Exposed	36	36	32	36	36	29	36	36	26	36	33	23	36	30	21	36	27	19	34	25	26	29	21	22	25	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	36	36	36	36	36	36	36	36	35	36	36	31	36	34	28	36	31	26	36	29	24	36	24	20	32	21	26	27	18	22	24	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	36	34	28	36	31	25	36	27	23	36	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	41	46	46	35	46	39	31	46	35	27	46	29	22	45	25	18	37	22	15	32	19	20	28	25	17	25	22	~~15~~
			Exposed	46	46	35	46	38	30	46	33	26	46	30	23	46	27	20	44	25	18	39	23	16	33	19	20	28	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	34	44	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	44	44	44	44	44	37	44	44	32	44	39	29	40	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	29	35	35	25	35	31	22	35	28	19
			Exposed	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	30	22	35	26	19	32	23	25	28	20	22	25	18	19
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	35	29	36	30	25	36	27	22	36	23	19	32	21	26
			Exposed	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	35	29	36	32	26	36	27	22	35	23	19	30	20	25	27	26	22	23	23	19	21	21	17
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	30	36	32	25	36	28	21	36	25	18
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31	36	32	25	36	28	21	36	24	17	36	21	14	32	18	19	28	25	17
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	27	35	31	23
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	32	35	35	26	34	30	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	33	23	35	28	20	34	25	26	30	22	23	26	19	21
			Exposed	35	35	35	35	35	34	35	35	31	35	35	28	35	35	25	35	32	23	35	30	21	34	25	27	29	21	23	25	18	20	22	24	17	19	22	15	26	19	14
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	34	28	36	29	24	36	25	20	33	21	18	29	19	23	25	25	21	22	22	18
			Exposed	36	36	34	36	36	30	36	33	27	36	30	24	36	27	22	36	24	20	34	22	18	29	19	24	25	24	20	21	21	17	19	18	15	25	16	13	22	14	12
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	35	28	36	30	23	36	26	19	36	23	16	34	20	21	30	27	18
			Exposed	36	36	36	36	36	36	36	36	33	36	36	28	36	32	25	36	29	22	36	27	20	36	23	16	33	19	20	29	26	17	25	22	15	22	20	13	20	17	12
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	29	35	32	24	32	28	20	28	25	18	25	22	23
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	34	25	32	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	14
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	36	27	36	32	23	36	27	19	33	24	25	28	21	22	25	18	20	22	24	17
			Exposed	36	36	32	36	36	29	36	36	26	36	33	23	36	30	21	36	27	19	34	25	26	29	21	22	25	27	19	21	23	17	19	20	15	25	18	13	22	16	11
		7-20	Interior	36	36	36	36	36	36	36	36	35	36	36	31	36	34	28	36	31	26	36	29	24	36	24	20	32	21	26	27	18	22	24	24	20	21	21	17	19	19	15
			Exposed	36	34	28	36	31	25	36	27	23	36	25	20	34	22	19	31	20	26	29	19	23	24	24	20	21	20	17	27	18	15	24	16	13	21	14	11	19	12	10
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	31	38	35	27	38	29	22	38	25	18	37	22	15	32	19	20	28	25	17	25	22	15
			Exposed	38	38	35	38	38	30	38	33	26	38	30	23	38	27	20	38	25	18	38	23	16	33	19	20	28	25	17	24	21	15	21	19	13	19	17	11	25	15	10
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	28	35	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	37	37	37	37	37	37	37	37	32	37	37	29	37	34	25	35	31	23	32	28	20	27	24	17	23	21	21	20	18	18	26	24	15	23	21	13	21	18	11
40	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	28	19
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	22	29	26	19	29	23	25	28	20	22	25	18	19
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	30	25	31	27	22	30	23	19	29	21	26
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	27	22	31	23	19	30	20	25	27	26	22	23	23	19	21	21	17
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	28	21	31	25	18
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	25	31	28	21	31	24	17	31	21	14	31	18	19	28	25	17
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	23
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	22	29	26	19	26	23	16	23	21	21
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	23	29	28	20	29	25	26	29	22	23	26	19	21
			Exposed	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	23	29	29	21	29	25	27	29	21	23	25	18	20	22	24	17	19	22	15	26	19	14
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	29	24	31	25	20	30	21	18	28	19	23	25	25	21	22	22	18
			Exposed	31	31	31	31	31	30	31	31	27	31	30	24	31	27	22	31	24	20	31	22	18	29	19	24	25	24	20	21	21	17	19	18	15	25	16	13	22	14	12
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	30	23	31	26	19	31	23	16	31	20	21	30	27	18
			Exposed	31	31	31	31	31	31	31	31	31	31	31	28	31	31	25	31	29	22	31	27	20	31	23	16	31	19	20	29	26	17	25	22	15	22	20	13	20	17	12
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	24	29	28	20	28	25	18	25	22	23
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	21	27	24	17	24	21	22	21	19	19	18	25	16	24	22	14
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	31	23	31	27	19	31	24	25	28	21	22	25	18	20	22	24	17
			Exposed	31	31	31	31	31	29	31	31	26	31	31	23	31	30	21	31	27	19	31	25	26	29	21	22	25	27	19	21	23	17	19	20	15	25	18	13	22	16	11
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	31	26	33	29	24	33	24	20	31	21	26	27	18	22	24	24	20	21	21	17	19	19	15
			Exposed	33	33	28	33	31	25	33	27	23	33	25	20	33	22	19	31	20	26	29	19	23	24	24	20	21	20	17	27	18	15	24	16	13	21	14	11	19	12	10
		20-27	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	29	22	33	25	18	33	22	15	32	19	20	28	25	17	25	22	15
			Exposed	33	33	33	33	33	30	33	33	26	33	30	23	33	27	20	33	25	18	33	23	16	33	19	20	28	25	17	24	21	15	21	19	13	19	17	11	25	15	10
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	23	30	27	19	26	24	17	23	21	22	21	19	19
			Exposed	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	31	23	31	28	20	27	24	17	23	21	21	20	18	18	26	24	15	23	21	13	21	18	11
50	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	23	25	24	20	22	24	18	19
		7-20	Interior	26	26	26	26	26	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	23	19	25	21	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	23	19	26	20	25	26	26	22	23	23	19	21	21	17
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	25	18
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	21	27	24	17	27	21	14	27	18	19	27	25	17
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	16	23	21	21
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	23	24	24	20	24	24	26	24	22	23	24	19	21
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	27	24	21	23	24	18	20	22	24	17	19	22	15	26	19	14
		7-20	Interior	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	25	20	25	21	18	24	19	23	24	25	21	22	22	18
			Exposed	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	24	20	26	22	18	26	19	24	25	24	20	21	21	17	19	18	15	25	16	13	22	14	12
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	26	19	27	23	16	27	23	16	27	20	21	27	27	18
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	22	27	27	20	27	23	16	27	19	20	27	26	17	25	22	15	22	20	13	20	17	12
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	20	25	25	18	25	22	23
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	24	17	24	21	22	21	19	19	18	25	16	24	22	14
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	19	26	24	25	26	21	22	25	18	20	22	24	17
			Exposed	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	25	26	26	21	22	25	27	19	21	23	17	19	20	15	25	18	13	22	16	11
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	24	20	27	21	26	26	18	22	24	24	20	21	21	17	19	19	15
			Exposed	28	28	28	28	28	25	28	27	23	28	25	20	28	22	19	28	20	26	28	19	23	24	24	20	21	20	17	27	18	15	24	16	13	21	14	11	19	12	10
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	22	28	25	18	28	22	15	28	19	20	28	25	17	25	22	15
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		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	27	19	26	24	17	23	21	22	21	19	19
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	27	20	27	24	17	23	21	21	20	18	18	26	24	15	23	21	13	21	18	11

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	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
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	25	20	20	22	20	18	19
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	21	26
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	25	22	26	22	22	23	19	21	21	~~17~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	17	23	21	14	23	18	19	23	25	17
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	21	21
	C	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	26	20	20	23	20	19	21
			Exposed	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	23	20	18	20	20	24	~~17~~	19	22	~~15~~	26	19	~~14~~
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	18	21	19	23	21	25	21	20	22	~~18~~
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	19	24	22	24	20	21	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	16	23	20	21	23	27	18
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	16	23	19	20	23	26	17	23	22	~~15~~	22	20	~~13~~	20	~~17~~	~~12~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	23
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	17	22	21	22	21	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	25	22	21	22	22	18	20	22	24	~~17~~
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	26	22	21	22	22	27	19	21	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	21	26	23	18	22	22	24	20	21	21	~~17~~	19	~~19~~	~~15~~
			Exposed	24	24	24	24	24	24	24	24	23	24	24	20	24	22	19	24	20	26	24	19	23	24	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	18	25	22	15	25	19	20	25	25	17	25	22	~~15~~
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	25	18	25	23	16	25	19	20	25	25	17	24	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	19	24	24	17	23	21	22	21	19	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	23	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
70	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	17	22	17	17	19
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	26
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	25	19	26	22	19	23	19	19	21	~~17~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18
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		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	21
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	26	17	17	23	17	17	21
			Exposed	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	20	17	24	~~17~~	17	22	~~15~~	26	19	~~14~~
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	23	19	25	21	18	22	~~18~~
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	24	19	24	20	19	21	~~17~~	19	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	21	20	27	18
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		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	23
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	22	19	19	19	18	25	16	24	22	~~14~~
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	25	19	19	22	19	18	20	19	24	~~17~~
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	26	19	19	22	19	27	19	19	23	~~17~~	19	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	26	20	18	22	20	24	20	19	21	~~17~~	18	~~19~~	~~15~~
			Exposed	21	21	21	21	21	21	21	21	21	21	21	20	21	21	19	21	20	26	21	19	23	21	24	20	21	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	15	22	19	20	22	25	17	22	22	~~15~~
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	19	20	22	25	17	22	21	~~15~~	21	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	22	21	19	19
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	21	20	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~
80	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	22	15	15	19
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	25
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	25	16	25	22	16	23	19	16	21	~~17~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	25	17
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	21
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	23	15	15	21
			Exposed	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	22	~~15~~	23	19	~~14~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23	16	25	21	16	22	~~18~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	24	20	16	21	~~17~~	16	~~18~~	~~15~~	25	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	21	26	26	18
			Exposed	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	20	26	26	17	26	22	~~15~~	26	20	~~13~~	26	~~17~~	~~12~~
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	25	16	25	22	~~14~~
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	17	22	17	17	20	17	24	~~17~~
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	25	17	17	22	17	25	19	17	23	~~17~~	17	20	~~15~~	25	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	26	18	18	22	18	24	20	17	21	~~17~~	17	~~19~~	~~15~~
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	26	18	18	23	18	24	20	18	20	~~17~~	27	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	15	19	19	20	19	25	17	19	22	~~15~~
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	20	19	25	17	19	21	~~15~~	19	19	~~13~~	19	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	22	18	18	19
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	21	18	18	18	26	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	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	13	13	13
			Exposed	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	13	13	19
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	22	15	22	19	15	21	~~17~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
	C	0-7	Interior	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	13	13	20
			Exposed	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~~	20	19	~~14~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	21	15	22	~~18~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	20	15	21	~~17~~	15	~~18~~	~~15~~	22	~~16~~	~~13~~	22	~~14~~	~~12~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	17	24	22	~~15~~	24	20	~~13~~	24	~~17~~	~~12~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	22	~~14~~
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	22	15	15	20	15	23	~~17~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	22	15	23	19	15	23	~~17~~	15	20	~~15~~	23	~~18~~	~~13~~	22	~~16~~	~~11~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	22	16	24	20	16	21	~~17~~	15	~~19~~	~~15~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	24	16	16	23	16	24	20	16	20	~~17~~	24	~~18~~	~~15~~	24	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	20	26	25	17	26	22	~~15~~
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	26	20	26	25	17	26	21	~~15~~	26	19	~~13~~	26	~~17~~	~~11~~	25	~~15~~	~~10~~
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	24	~~15~~	23	21	~~13~~	21	~~18~~	~~11~~			
100	B	0-7	Interior	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	12
			Exposed	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	18
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	20	20	24	20	19	24	20	~~17~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	C	0-7	Interior	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	18
			Exposed	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	~~17~~	12	18	~~15~~	18	18	~~14~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	20	20	24	20	~~18~~
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	20	20	24	20	~~17~~	24	~~18~~	~~15~~	20	~~16~~	~~13~~	20	~~14~~	~~12~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	~~15~~	21	20	~~13~~	21	~~17~~	~~12~~			
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	~~14~~
	D	0-7	Interior	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	20	13	20	~~17~~
			Exposed	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	20	19	13	20	~~17~~	13	20	~~15~~	20	~~18~~	~~13~~	20	~~16~~	~~11~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	22	15	22	20	15	21	~~17~~	14	~~19~~	~~15~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	22	15	22	20	15	20	~~17~~	22	~~18~~	~~15~~	22	~~16~~	~~13~~	21	~~14~~	~~11~~	~~19~~	~~12~~	~~10~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	22	~~15~~
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	17	24	21	~~15~~	24	19	~~13~~	24	~~17~~	~~11~~	24	~~15~~	~~10~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	~~15~~	22	21	~~13~~	21	~~18~~	~~11~~			

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	131	134	134	65	134	120	56	134	77	49	133	61	43	96	54	38
			Exposed	134	134	134	134	134	134	134	134	134	134	134	133	134	134	87	134	134	64	134	132	59	134	79	50	132	60	43	84	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	82	123	123	57	123	60	50	123	52	43	75	46	38	63	41	34
			Exposed	123	123	123	123	123	123	123	123	123	123	123	123	123	123	62	123	123	57	123	63	52	123	53	44	72	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	59	116	63	49	116	56	42	116	50	36
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	62	116	64	50	116	55	41	100	47	34	75	42	29	62	37	25	55	33	34
		27-45	Interior	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	62	110	88	53	110	62	46
			Exposed	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	63	110	80	52	82	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	131	134	134	79	134	134	63	134	98	53	134	65	46	106	56	40	70	49	35	59	43	46	52	38	41
			Exposed	134	134	131	134	134	72	134	134	60	134	106	55	134	78	49	134	64	45	128	58	41	72	49	35	58	42	45	50	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	123	123	123	123	123	123	123	123	123	123	123	123	123	123	78	123	123	61	123	82	56	123	57	47	82	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	123	123	75	123	123	59	123	65	53	123	58	48	123	53	44	80	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	91	54	116	59	45	116	51	37	84	45	31	68	39	27	59	35	36
			Exposed	116	116	116	116	116	116	116	116	69	116	116	56	116	64	49	116	58	44	116	53	39	86	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	80	110	110	56	110	64	47	62	56	40	55	49	35	49	44	30
			Exposed	110	110	110	110	110	110	110	110	110	110	110	91	110	110	62	110	110	56	110	70	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	134	134	134	134	134	134	134	134	133	134	134	84	134	134	63	134	131	58	134	95	53	134	63	45	95	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	134	134	63	134	121	56	134	84	51	134	65	46	131	59	41	91	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	123	123	123	123	123	123	123	123	123	123	123	62	123	88	56	123	62	51	123	56	47	79	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	30
			Exposed	123	83	56	123	60	50	123	54	45	82	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	61	116	84	54	116	58	43	116	49	36	79	43	30	64	37	26	56	33	34	50	44	30
			Exposed	116	116	116	116	116	59	116	66	51	116	59	45	116	53	39	116	49	35	85	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	77	110	109	55	110	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	110	110	110	110	110	110	110	110	65	110	110	56	110	72	50	110	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23
10	B	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	65	100	100	56	100	77	49	100	61	43	96	54	38
			Exposed	100	100	100	100	100	100	100	100	100	100	100	100	100	100	87	100	100	64	100	100	59	100	79	50	100	60	43	84	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	82	101	101	57	101	60	50	101	52	43	75	46	38	63	41	34
			Exposed	101	101	101	101	101	101	101	101	101	101	101	101	101	101	62	101	101	57	101	63	52	101	53	44	72	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	59	105	63	49	105	56	42	105	50	36
			Exposed	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	62	105	64	50	105	55	41	100	47	34	75	42	29	62	37	25	55	33	34
		27-45	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	62	99	88	53	99	62	46
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	63	99	80	52	82	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	79	100	100	63	100	98	53	100	65	46	100	56	40	70	49	35	59	43	46	52	38	41
			Exposed	100	100	100	100	100	72	100	100	60	100	100	55	100	78	49	100	64	45	100	58	41	72	49	35	58	42	45	50	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	78	101	101	61	101	82	56	101	57	47	82	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	101	101	75	101	101	59	101	65	53	101	58	48	101	53	44	80	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	91	54	105	59	45	105	51	37	84	45	31	68	39	27	59	35	36
			Exposed	105	105	105	105	105	105	105	105	69	105	105	56	105	64	49	105	58	44	105	53	39	86	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	80	99	99	56	99	64	47	62	56	40	55	49	35	49	44	30
			Exposed	99	99	99	99	99	99	99	99	99	99	99	91	99	99	62	99	99	56	99	70	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	84	100	100	63	100	100	58	100	95	53	100	63	45	95	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	100	100	63	100	100	56	100	84	51	100	65	46	100	59	41	91	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	62	101	88	56	101	62	51	101	56	47	79	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	30
			Exposed	101	83	56	101	60	50	101	54	45	82	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	61	108	84	54	108	58	43	108	49	36	79	43	30	64	37	26	56	33	34	50	44	30
			Exposed	108	108	108	108	108	59	108	66	51	108	59	45	108	53	39	108	49	35	85	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	77	102	102	55	102	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	102	102	102	102	102	102	102	102	65	102	102	56	102	72	50	102	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23
20	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	70	56	70	70	49	70	61	43	70	54	38
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	59	70	70	50	70	60	43	70	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	57	71	60	50	71	52	43	71	46	38	63	41	34
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	59	83	63	49	83	56	42	83	50	36
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	62	83	64	50	83	55	41	83	47	34	75	42	29	62	37	25	55	33	34
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	62	79	79	53	79	62	46
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	63	79	79	52	79	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	53	70	65	46	70	56	40	70	49	35	59	43	46	52	38	41
			Exposed	70	70	70	70	70	70	70	70	60	70	70	55	70	70	49	70	64	45	70	58	41	70	49	35	58	42	45	50	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	61	71	71	56	71	57	47	71	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	71	71	71	71	71	59	71	65	53	71	58	48	71	53	44	71	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	54	83	59	45	83	51	37	83	45	31	68	39	27	59	35	36
			Exposed	83	83	83	83	83	83	83	83	69	83	83	56	83	64	49	83	58	44	83	53	39	83	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	56	79	64	47	62	56	40	55	49	35	49	44	30
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	62	79	79	56	79	70	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	58	70	70	53	70	63	45	70	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	70	70	63	70	70	56	70	70	51	70	65	46	70	59	41	70	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	62	71	71	56	71	62	51	71	56	47	71	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	30
			Exposed	71	71	56	71	60	50	71	54	45	71	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	61	87	84	54	87	58	43	87	49	36	79	43	30	64	37	26	56	33	34	50	44	30
			Exposed	87	87	87	87	87	59	87	66	51	87	59	45	87	53	39	87	49	35	85	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	77	83	83	55	83	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	83	83	83	83	83	83	83	83	65	83	83	56	83	72	50	83	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	56	68	68	49	68	61	43	68	54	38
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	68	59	68	68	50	68	60	43	68	52	37	62	45	32	55	40	43	49	36	38
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	57	71	60	50	71	52	43	71	46	38	63	41	34
			Exposed	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	59	69	63	49	69	56	42	69	50	36
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	64	50	69	55	41	69	47	34	69	42	29	62	37	25	55	33	34
		27-45	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	62	66	66	53	66	62	46
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	63	66	66	52	66	59	44	58	52	37	51	46	32	45	41	28
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	63	68	68	53	68	65	46	68	56	40	68	49	35	59	43	46	52	38	41
			Exposed	68	68	68	68	68	68	68	68	60	68	68	55	68	68	49	68	64	45	68	58	41	68	49	35	58	42	45	50	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	61	71	71	56	71	57	47	71	49	40	65	42	35	56	37	46	50	33	41	44	44	36
			Exposed	71	71	71	71	71	59	71	65	53	71	58	48	71	53	44	71	48	40	69	44	36	57	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	54	69	59	45	69	51	37	69	45	31	68	39	27	59	35	36
			Exposed	69	69	69	69	69	69	69	69	69	69	69	56	69	64	49	69	58	44	69	53	39	69	45	32	66	39	26	57	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	56	66	64	47	62	56	40	55	49	35	49	44	30
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	62	66	66	56	66	66	50	63	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	58	70	70	53	70	63	45	70	54	38	64	47	33	56	41	44	49	36	39	44	48	34
			Exposed	70	70	63	70	70	56	70	70	51	70	65	46	70	59	41	70	53	38	70	49	35	57	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	62	71	71	56	71	62	51	71	56	47	71	48	39	63	41	34	54	35	44	47	47	39	42	41	34	37	37	30
			Exposed	71	71	56	71	60	50	71	54	45	71	49	40	69	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	61	72	72	54	72	58	43	72	49	36	72	43	30	64	37	26	56	33	34	50	44	30
			Exposed	72	72	72	72	72	59	72	66	51	72	59	45	72	53	39	72	49	35	72	45	31	64	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	55	69	62	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	69	69	69	69	69	69	69	69	65	69	69	56	69	69	50	69	61	45	62	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23
40	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	57	57	49	57	57	43	57	54	38
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	43	57	52	37	57	45	32	55	40	43	49	36	38
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	50	60	52	43	59	46	38	57	41	34
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	53	44	60	45	38	60	39	33	52	34	43	46	46	38	41	41	34
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	49	58	56	42	58	50	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	55	41	58	47	34	58	42	29	58	37	25	55	33	34
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	46
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	52	56	56	44	56	52	37	51	46	32	45	41	28			
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	46	57	56	40	57	49	35	57	43	46	52	38	41
			Exposed	57	57	57	57	57	57	57	57	57	57	57	55	57	57	49	57	57	45	57	57	41	57	49	35	57	42	45	50	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	57	47	60	49	40	58	42	35	56	37	46	50	33	41	44	44	36
			Exposed	60	60	60	60	60	59	60	60	53	60	58	48	60	53	44	60	48	40	60	44	36	57	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	54	58	58	45	58	51	37	58	45	31	58	39	27	58	35	36
			Exposed	58	58	58	58	58	58	58	58	58	58	58	56	58	58	49	58	58	44	58	53	39	58	45	32	58	39	26	57	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	47	56	56	40	55	49	35	49	44	30
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	50	56	56	41	54	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	61	45	61	54	38	61	47	33	56	41	44	49	36	39	44	48	34
			Exposed	61	61	61	61	61	56	61	61	51	61	61	46	61	59	41	61	53	38	61	49	35	57	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	62	64	64	56	64	62	51	64	56	47	64	48	39	61	41	34	54	35	44	47	47	39	42	41	34	37	37	30
			Exposed	64	64	56	64	60	50	64	54	45	64	49	40	64	44	37	62	40	33	56	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61	62	62	54	62	58	43	62	49	36	62	43	30	62	37	26	56	33	34	50	44	30
			Exposed	62	62	62	62	62	59	62	62	51	62	59	45	62	53	39	62	49	35	62	45	31	62	38	26	55	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	46	60	54	38	52	47	33	46	41	28	41	37	37
			Exposed	60	60	60	60	60	60	60	60	60	60	60	56	60	60	50	60	60	45	60	56	40	53	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23
50	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	46	38
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	43	46	46	37	46	45	32	46	40	43	46	36	38
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	46	38	49	41	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	45	38	50	39	33	50	34	43	46	46	38	41	41	34
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	51	42	51	50	36
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	41	51	47	34	51	42	29	51	37	25	51	33	34
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	37	49	46	32	45	41	28
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	35	46	43	46	46	38	41
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	41	46	46	35	46	42	45	46	37	39	44	48	34	39	43	30	34	38	27
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	49	40	50	42	35	48	37	46	46	33	41	44	44	36
			Exposed	50	50	50	50	50	50	50	50	50	50	50	48	50	50	44	50	48	40	50	44	36	50	37	47	49	32	40	42	42	35	37	37	30	49	32	27	44	29	24
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	51	45	51	51	37	51	45	31	51	39	27	51	35	36
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	39	51	45	32	51	39	26	51	33	35	50	44	30	44	39	27	39	35	24
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	40	49	49	35	49	44	30
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	41	49	48	34	47	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	51	38	51	47	33	51	41	44	49	36	39	44	48	34
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	51	51	41	51	51	38	51	49	35	51	41	44	49	35	38	42	46	33	37	40	29	49	36	25	43	32	23
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	47	55	48	39	53	41	34	51	35	44	47	47	39	42	41	34	37	37	30
			Exposed	55	55	55	55	55	50	55	54	45	55	49	40	55	44	37	55	40	33	55	37	46	48	31	39	41	41	34	35	35	29	47	31	25	41	27	22	37	24	20
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	43	54	49	36	54	43	30	54	37	26	54	33	34	50	44	30
			Exposed	54	54	54	54	54	54	54	54	51	54	54	45	54	53	39	54	49	35	54	45	31	54	38	26	54	32	34	48	42	29	42	37	25	37	33	22	49	29	20
		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	38	52	47	33	46	41	28	41	37	37
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	45	52	52	40	52	47	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	23

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	43	39	36	38
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	41	34
			Exposed	42	42	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	42	39	33	42	34	43	42	46	38	41	41	34
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	36
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	34	45	42	29	45	37	25	45	33	34
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	41	28
	C	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	35	39	39	46	39	38	41
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	45	39	37	39	39	48	34	39	43	~~30~~	34	38	~~27~~
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	35	42	37	46	41	33	41	39	44	36
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	37	47	42	32	40	42	42	35	37	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	37	45	45	31	45	39	27	45	35	36
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	39	45	45	32	45	39	26	45	33	35	45	44	30	44	39	27	39	35	~~24~~
		27-45	Interior	42	42	42	42	42	42	42	42	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	42	42	35	42	42	30
			Exposed	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	34	42	42	29	41	37	37	36	32	32	32	43	28
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	33	43	41	44	43	36	39	43	48	34
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	38	43	43	35	43	41	44	43	35	38	42	46	33	37	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	41	34	45	35	44	43	47	39	42	41	34	37	37	~~30~~
			Exposed	47	47	47	47	47	47	47	47	45	47	47	40	47	44	37	47	40	33	47	37	46	47	31	39	41	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	43	48	48	36	48	43	30	48	37	26	48	33	34	48	44	30
			Exposed	48	48	48	48	48	48	48	48	48	48	48	45	48	48	39	48	48	35	48	45	31	48	38	26	48	32	34	48	42	29	42	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	46	33	46	41	28	41	37	37
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	40	46	46	33	45	41	28	39	35	35	34	46	30	46	41	26	41	36	~~23~~
70	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	43	34	34	38
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	34	43	37	46	38	37	41	34
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	29	39	37	25	39	33	34
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	28
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	46	34	34	41
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	45	34	34	39	34	48	34	34	43	~~30~~	34	38	~~27~~
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	46	36	33	41	35	44	36
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	47	37	32	40	37	42	35	37	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	31	39	39	27	39	35	36
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	32	39	39	26	39	33	35	39	44	30	39	39	27	39	35	~~24~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	37	37	36	32	32	32	43	28
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	37	44	37	36	39	37	48	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	44	37	35	38	37	46	33	37	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	34	40	35	44	39	47	39	37	41	34	36	37	~~30~~
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	33	40	37	46	40	31	39	40	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	43	43	43	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	30	43	37	26	43	33	34	43	44	30
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	43	31	43	38	26	43	32	34	43	42	29	42	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	33	41	41	28	41	37	37
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	33	41	41	28	39	35	35	34	46	30	46	41	26	41	36	~~23~~
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	43	30	30	38
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	43	32	46	38	32	41	34
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	44	51	51	38	51	49	34
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	42
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	30	30	41
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	45	30	30	39	30	45	34	30	43	~~30~~	30	38	~~27~~
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	46	32	32	41	32	44	36
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	47	32	32	40	32	42	35	32	37	~~30~~	49	32	~~27~~	44	~~29~~	~~24~~
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	41	51	51	36
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	40	51	50	35	51	44	30	51	39	27	51	35	~~24~~
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	44	49	49	37	49	49	32	48	43	28
	D	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	44	33	33	39	33	48	34
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	44	33	33	38	33	46	33	33	40	~~29~~	49	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	35	44	35	47	39	34	41	34	33	37	~~30~~
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	46	36	31	39	36	41	34	35	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	30	38	37	26	38	33	34	38	44	30
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	35	38	38	31	38	38	26	38	32	34	38	42	29	38	37	25	37	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	52	54	54	43	54	54	37
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	53	54	54	42	54	53	35	52	46	30	46	41	26	41	36	~~23~~

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	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	38
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	43	38	29	41	34
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	46	34
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42
	C	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	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
			Exposed	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	40	34	26	40	~~30~~	26	38	~~27~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	29	41	29	43	36
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	29	40	29	42	35	29	37	~~30~~	43	32	~~27~~	43	~~29~~	~~24~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	35	46	44	30	46	39	27	46	35	~~24~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	37	44	44	32	44	43	28
	D	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	44	29	29	39	29	44	34
			Exposed	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	38	29	44	33	29	40	~~29~~	44	36	~~25~~	43	~~32~~	~~23~~
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	44	32	47	39	31	41	34	30	37	~~30~~
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	46	32	31	39	32	41	34	32	35	~~29~~	47	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	47	51	51	39	51	50	34	51	44	30
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	39	51	49	34	51	42	29	51	37	25	51	33	~~22~~	49	~~29~~	~~20~~
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	43	48	48	37
			Exposed	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	42	48	48	35	48	47	30	46	41	26	41	37	~~23~~
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	36
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	39	38	47	39	34
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	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	42	42	34
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	36
			Exposed	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	36	34	24	36	~~30~~	24	36	~~27~~
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	39	47	39	36
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	39	47	39	35	47	37	~~30~~	39	32	~~27~~	39	~~29~~	~~24~~
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	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
			Exposed	42	42	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	42	42	35	42	42	30	42	39	27	42	35	~~24~~
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	32	40	40	28
	D	0-7	Interior	26	26	26	26	26	26	26	26	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	40	34
			Exposed	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	38	26	40	33	26	40	~~29~~	40	36	~~25~~	40	~~32~~	~~23~~
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	43	39	29	41	34	28	37	~~30~~
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	43	29	29	39	29	41	34	29	35	~~29~~	43	~~31~~	~~25~~	41	~~27~~	~~22~~	37	~~24~~	~~20~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	34	46	44	30
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	34	46	42	29	46	37	25	46	33	~~22~~	46	~~29~~	~~20~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	37
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	35	44	44	30	44	41	26	41	37	~~23~~

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

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

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

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	39	28	42	35	24	42	31	22
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	42	33	42	40	28	42	34	24	40	29	21	35	26	18	31	23	16	27	20	21
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	39	32	43	34	28	43	30	24	40	26	22	35	23	19
			Exposed	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	39	32	43	35	29	43	30	25	39	26	21	34	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	39	51	41	32	51	36	27	51	31	23	49	28	20
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	44	51	50	38	51	43	34	51	36	27	51	31	22	47	27	19	40	23	16	35	21	14	31	18	19
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	40	47	46	34	45	39	29	39	35	25
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	35	44	39	29	37	34	24	33	29	21	29	26	18	26	23	15
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	36	42	42	30	42	36	26	42	31	22	38	27	19	33	24	17	29	21	23
			Exposed	42	42	42	42	42	38	42	42	34	42	42	31	42	39	28	42	36	25	42	33	23	38	28	20	33	24	17	28	21	22	25	18	19	22	16	17	19	21	15
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	34	43	38	31	43	32	27	42	27	23	36	24	20	32	21	17	28	18	23	25	16	20
			Exposed	43	43	38	43	41	33	43	36	30	43	33	27	43	30	25	42	27	22	38	25	21	32	21	17	27	18	23	24	16	20	21	21	17	18	18	15	16	16	13
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	42	51	49	37	51	39	30	51	33	25	51	29	20	43	25	17	38	22	15	33	20	13
			Exposed	51	51	50	51	51	41	51	45	35	51	40	31	51	36	27	51	33	24	51	30	22	44	25	17	37	22	15	32	19	13	28	16	17	25	22	15	22	19	13
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	38	47	42	31	40	36	26	35	31	22	31	28	19	28	25	17
			Exposed	47	47	47	47	47	47	47	47	45	47	47	39	47	47	35	47	41	31	42	38	28	36	32	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	39	43	43	36	43	43	33	43	42	30	43	36	25	42	30	22	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	43	43	36	43	43	32	43	40	29	43	36	26	43	33	23	41	30	21	38	28	19	32	23	16	27	20	21	24	17	19	21	23	16	18	20	14	16	18	13
		7-20	Interior	43	43	43	43	43	43	43	43	39	43	42	35	43	38	32	43	35	29	43	32	26	41	27	22	35	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	43	38	31	43	34	28	43	30	25	42	28	23	38	25	21	35	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	55	55	55	55	55	55	55	55	53	55	55	43	55	49	38	55	42	33	55	38	30	55	33	24	49	28	20	41	24	16	36	21	14	32	19	19	28	16	17
			Exposed	55	49	38	55	41	32	55	37	28	55	33	25	55	30	22	48	27	19	43	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	13	18	16	11
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	48	51	51	42	51	51	37	48	41	31	39	35	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	51	51	48	51	51	40	51	49	36	50	42	31	42	38	28	38	34	25	35	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	13
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	35	24	35	31	22
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	28	35	34	24	35	29	21	35	26	18	31	23	16	27	20	21
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	34	28	37	30	24	36	26	22	34	23	19
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	35	29	37	30	25	37	26	21	34	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	32	39	36	27	39	31	23	39	28	20
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	34	39	36	27	39	31	22	39	27	19	39	23	16	35	21	14	31	18	19
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	35	25
			Exposed	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	29	37	34	24	33	29	21	29	26	18	26	23	15
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	31	22	35	27	19	33	24	17	29	21	23
			Exposed	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	25	35	33	23	35	28	20	33	24	17	28	21	22	25	18	19	22	16	17	19	21	15
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	32	27	36	27	23	35	24	20	32	21	17	28	18	23	25	16	20
			Exposed	37	37	37	37	37	33	37	36	30	37	33	27	37	30	25	37	27	22	37	25	21	32	21	17	27	18	23	24	16	20	21	21	17	18	18	15	16	16	13
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	30	39	33	25	39	29	20	39	25	17	38	22	15	33	20	13
			Exposed	39	39	39	39	39	39	39	39	35	39	39	31	39	36	27	39	33	24	39	30	22	39	25	17	37	22	15	32	19	13	28	16	17	25	22	15	22	19	13
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	31	37	36	26	35	31	22	31	28	19	28	25	17
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	31	37	37	28	36	32	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	37	36	25	37	30	22	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	37	37	36	37	37	32	37	37	29	37	36	26	37	33	23	37	30	21	37	28	19	32	23	16	27	20	21	24	17	19	21	23	16	18	20	14	16	18	13
		7-20	Interior	39	39	39	39	39	39	39	39	39	39	39	35	39	38	32	39	35	29	39	32	26	39	27	22	35	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	39	38	31	39	34	28	39	30	25	39	28	23	38	25	21	35	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	42	33	43	38	30	43	33	24	43	28	20	41	24	16	36	21	14	32	19	19	28	16	17
			Exposed	43	43	38	43	41	32	43	37	28	43	33	25	43	30	22	43	27	19	43	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	13	18	16	11
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	40	31	39	35	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	40	40	40	40	40	40	40	40	36	40	40	31	40	38	28	38	34	25	35	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	13
50	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	22
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	21	28	26	18	28	23	16	27	20	21
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	30	24	30	26	22	30	23	19
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	30	25	31	26	21	31	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	27	32	31	23	32	28	20
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	27	32	31	22	32	27	19	32	23	16	32	21	14	31	18	19
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	24	31	29	21	29	26	18	26	23	15	26	23	15
	C	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	22	28	27	19	28	24	17	28	21	23
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	20	28	24	17	28	21	22	25	18	19	22	16	17	19	21	15
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	27	23	30	24	20	29	21	17	28	18	23	25	16	20
			Exposed	31	31	31	31	31	31	31	31	30	31	31	27	31	30	25	31	27	22	31	25	21	31	21	17	27	18	23	24	16	20	21	21	17	18	18	15	16	16	13
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	25	32	29	20	32	25	17	32	22	15	32	20	13
			Exposed	32	32	32	32	32	32	32	32	32	32	32	31	32	32	27	32	32	24	32	30	22	32	25	17	32	22	15	32	19	13	28	16	17	25	22	15	22	19	13
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	31	22	31	28	19	28	25	17
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	30	22	31	26	19	31	23	16	28	20	22	25	18	19
			Exposed	31	31	31	31	31	31	31	31	29	31	31	26	31	31	23	31	30	21	31	28	19	31	23	16	27	20	21	24	17	19	21	23	16	18	20	14	16	18	13
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	26	33	27	22	32	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	34	34	31	34	34	28	34	30	25	34	28	23	34	25	21	34	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	33	24	36	28	20	36	24	16	35	21	14	32	19	19	28	16	17
			Exposed	36	36	36	36	36	32	36	36	28	36	33	25	36	30	22	36	27	19	36	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	13	18	16	11
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	34	34	34	34	34	34	34	34	34	34	34	31	34	34	28	34	34	25	34	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	13

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

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

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	23	16	24	20	21
		7-20	Interior	26	26	26	26	26	26	26	26	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	22	26	23	19
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	22	18	26	19	16	26	17	21	23	23	19
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	27	20
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	27	19	27	23	16	27	21	14	27	18	19
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	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
			Exposed	26	26	26	26	26	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	18	26	23	15
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17	24	21	23
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	21	22	24	18	19	22	16	17	19	21	15
		7-20	Interior	26	26	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	26	24	20	25	21	17	24	18	23	24	16	20
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	25	21	26	21	17	26	18	23	24	16	20	21	21	17	18	18	15	16	16	13
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	20	27	25	17	27	22	15	27	20	13	27	20	13
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	25	17	27	22	15	27	19	13	27	16	17	25	22	15	22	19	13
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	25	17
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	26	19	26	23	16	26	20	22	25	18	19
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	23	16	26	20	21	24	17	19	21	23	16	18	20	14	16	18	13
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	28	23	19	27	20	16	26	17	22	23	23	19	21	21	17
			Exposed	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	21	17	27	18	22	23	23	19	20	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	24	30	28	20	30	24	16	30	21	14	30	19	19	28	16	17
			Exposed	30	30	30	30	30	30	30	30	28	30	30	25	30	30	22	30	27	19	30	25	17	30	21	15	30	18	19	27	16	16	24	21	14	21	18	13	18	16	11
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	21	29	26	18	26	23	16	23	21	14
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	25	29	29	22	29	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	13
70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	16	21	20	21
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	19	16	22	17	21	22	23	19			
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	23	16	24	21	14	24	18	19			
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	15
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	23
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	22	21	18	19	21	16	17	19	21	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	17	22	18	23	21	16	20
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	21	17	22	18	23	22	16	20	21	21	17	18	18	15	16	16	13
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	17	24	22	15	24	20	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	17	24	22	15	24	19	13	24	16	17	24	22	15	22	19	13
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	21	14	20	18	18	18	18	16	16		
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	16	23	20	22	23	18	19
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	23	16	23	20	21	23	17	19	21	23	16	18	20	14	16	18	13
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	19	24	20	16	23	17	22	22	23	19	21	21	17	
			Exposed	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	23	19	25	21	17	25	18	22	23	23	19	20	20	16	17	17	14	23	15	13	21	14	11	
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	24	26	26	20	26	24	16	26	21	14	26	19	19	26	16	17
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	25	17	26	21	15	26	18	19	26	16	16	24	21	14	21	18	13	18	16	11	
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	23	16	23	21	14
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	18	25	23	15	22	20	13	19	17	17	17	23	15	23	21	13	
80	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	21
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	19	16	20	17	21	20	23	19
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	21	14	21	18	19
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	23
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	22	18	18	19	18	16	17	18	21	15	
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	23	19	16	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	23	20	16	20	20	21	17	18	18	15	16	16	13	
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	20	13
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	19	13	21	16	17	21	22	15	21	19	13	
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	14	20	18	18	18	16	16			
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	22	20	18	19
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	21	20	17	19	20	23	16	18	20	14	16	18	13	
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	16	21	17	22	20	23	19	20	21	17	
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	18	22	22	23	19	20	20	16	17	17	14	23	15	13	21	14	11		
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	23	16	23	21	14	23	19	19	23	16	17	
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	23	23	17	23	21	15	23	18	19	23	16	16	23	21	14	21	18	13	18	16	11	
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	21	14	
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	15	22	20	13	19	17	17	17	23	15	23	21	13

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

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

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	23	19			
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	18	19			
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	16	19	16	16	17	16	21	15
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	16	20
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	16	20	17	21	17	17	18	15	16	16	13
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13	19	16	17	19	22	15	19	19	13
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	18	18	18	16	16
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	22	18	18	19
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	21	18	17	19	18	23	16	18	20	14	16	18	13
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	22	19	23	19	18	21	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	22	19	23	19	19	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	16	21	21	14	21	19	19	21	16	17
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	18	19	21	16	16	21	21	14	21	18	13	18	16	11
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15	20	20	13	19	17	17	17	23	15	23	21	13
100	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	21
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21	16	23	19
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	19
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22	14	14	19	14	14	17	14	21	15
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23	16	16	20
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23	16	16	20	16	21	17	16	18	15	16	16	13
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	17	17	22	15	17	19	13			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	24	16
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	16	19
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21	16	16	19	16	23	16	16	20	14	16	18	13
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	22	17	23	19	17	21	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	22	17	23	19	17	20	16	17	17	14	23	15	13	21	14	11			
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	19	19	19	16	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15	19	18	19	19	16	16	19	21	14	19	18	13	18	16	11
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	17	17	23	15	23	21	13			

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

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

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	142	144	144	111	144	138	62	144	106	53	141	68	47	132	58	41	84	52	37
			Exposed	144	144	144	144	144	144	144	144	139	144	144	132	144	143	72	144	137	61	144	131	56	142	69	47	131	57	40	73	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	64	145	71	55	145	57	47	87	50	41	69	44	36	60	39	32
			Exposed	145	145	145	145	145	145	145	145	142	145	145	65	145	139	59	145	65	54	145	60	49	88	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	145	140	147	133	54	147	60	46	139	53	39	110	47	33
			Exposed	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	144	139	147	136	57	147	61	46	137	52	38	88	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	140	149	145	86	149	135	58	149	71	50	137	59	43
			Exposed	149	149	149	149	149	149	149	149	149	149	149	149	149	149	147	149	149	139	149	149	133	149	136	58	147	65	49	63	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	144	144	144	144	144	144	144	144	144	144	144	137	144	144	107	144	142	66	144	135	60	144	86	51	136	61	43	93	53	38	64	46	33	56	41	29	50	36	39
			Exposed	144	144	103	144	140	64	144	133	57	144	94	52	141	69	47	135	61	43	113	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	145	145	145	145	145	145	145	145	145	145	145	139	145	145	63	145	137	58	145	64	53	145	54	45	75	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	145	145	63	145	135	56	145	61	51	145	55	46	88	50	42	74	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	147	146	147	142	65	147	66	51	143	56	42	132	48	35	78	42	29	64	37	26	56	33	23
			Exposed	147	147	147	147	147	144	147	138	60	147	76	52	147	61	46	142	55	41	135	51	36	80	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	145	149	149	138	149	141	65	149	98	53	140	61	44	59	53	38	52	47	33	46	42	28
			Exposed	149	149	149	149	149	143	149	149	135	149	143	71	149	136	58	149	88	52	144	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	144	144	144	144	144	139	144	144	131	144	143	70	144	136	60	144	122	55	144	84	50	134	60	42	83	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	144	136	60	144	107	54	143	73	48	136	61	43	116	56	39	80	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	145	145	145	145	145	142	145	145	65	145	138	59	145	64	53	145	59	48	145	54	44	73	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	145	64	53	145	57	47	92	51	42	76	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	147	147	147	147	147	147	147	147	147	147	147	147	147	143	68	147	135	56	147	65	50	141	55	40	105	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	147	142	65	147	133	54	147	62	47	143	56	42	136	51	37	94	46	33	78	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	149	149	149	149	149	149	149	149	149	149	149	146	149	149	138	149	148	131	149	140	64	149	83	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	149	149	138	149	146	88	149	137	60	149	100	53	144	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
10	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	62	102	102	53	102	68	47	102	58	41	84	52	37
			Exposed	102	102	102	102	102	102	102	102	102	102	102	102	102	102	72	102	102	61	102	102	56	102	69	47	102	57	40	73	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	64	103	71	55	103	57	47	87	50	41	69	44	36	60	39	32
			Exposed	103	103	103	103	103	103	103	103	103	103	103	65	103	103	59	103	65	54	103	60	49	88	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	54	134	60	46	134	53	39	110	47	33
			Exposed	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	57	134	61	46	134	52	38	88	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	86	137	135	58	137	71	50	137	59	43
			Exposed	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	133	137	136	58	137	65	49	63	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	66	102	102	60	102	86	51	102	61	43	93	53	38	64	46	33	56	41	29	50	36	39
			Exposed	102	102	102	102	102	64	102	102	57	102	94	52	102	69	47	102	61	43	102	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	63	103	103	58	103	64	53	103	54	45	75	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	103	103	63	103	103	56	103	61	51	103	55	46	88	50	42	74	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	65	134	66	51	134	56	42	132	48	35	78	42	29	64	37	26	56	33	23
			Exposed	134	134	134	134	134	134	134	134	60	134	76	52	134	61	46	134	55	41	134	51	36	80	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	98	53	137	61	44	59	53	38	52	47	33	46	42	28
			Exposed	137	137	137	137	137	137	137	137	135	137	137	71	137	136	58	137	88	52	137	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	70	102	102	60	102	102	55	102	84	50	102	60	42	83	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	102	102	60	102	102	54	102	73	48	102	61	43	102	56	39	80	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	103	103	103	103	103	103	103	103	65	103	103	59	103	64	53	103	59	48	103	54	44	73	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	103	64	53	103	57	47	92	51	42	76	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	68	138	135	56	138	65	50	138	55	40	105	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	138	138	65	138	133	54	138	62	47	138	56	42	136	51	37	94	46	33	78	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	142	142	142	142	142	142	142	142	142	142	142	142	142	142	138	142	142	131	142	140	64	142	83	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	142	142	138	142	142	88	142	137	60	142	100	53	142	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
20	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	62	72	72	53	72	68	47	72	58	41	72	52	37
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	61	72	72	56	72	69	47	72	57	40	72	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	71	55	72	57	47	72	50	41	69	44	36	60	39	32
			Exposed	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	65	54	72	60	49	72	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	54	106	60	46	106	53	39	106	47	33
			Exposed	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	57	106	61	46	106	52	38	88	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	86	103	103	58	103	71	50	97	59	43
			Exposed	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	58	103	65	49	63	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	66	72	72	60	72	72	51	72	61	43	72	53	38	64	46	33	56	41	29	50	36	39
			Exposed	72	72	72	72	72	64	72	72	57	72	72	52	72	69	47	72	61	43	72	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	63	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	72	72	63	72	72	56	72	61	51	72	55	46	72	50	42	72	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	65	106	66	51	106	56	42	106	48	35	78	42	29	64	37	26	56	33	23
			Exposed	106	106	106	106	106	106	106	106	60	106	76	52	106	61	46	106	55	41	106	51	36	80	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	65	103	98	53	100	61	44	59	53	38	52	47	33	46	42	28
			Exposed	103	103	103	103	103	103	103	103	103	103	103	71	103	103	58	103	88	52	103	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	70	72	72	60	72	72	55	72	72	50	72	60	42	72	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	72	72	60	72	72	54	72	72	48	72	61	43	72	56	39	72	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	72	72	72	72	72	72	72	72	65	72	72	59	72	64	53	72	59	48	72	54	44	72	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	72	64	53	72	57	47	72	51	42	72	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	68	111	111	56	111	65	50	111	55	40	105	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	111	111	65	111	111	54	111	62	47	111	56	42	111	51	37	94	46	33	78	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	64	109	83	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	109	109	109	109	109	88	109	109	60	109	100	53	109	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	62	70	70	53	70	68	47	70	58	41	70	52	37
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	61	70	70	56	70	69	47	70	57	40	70	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	71	55	72	57	47	72	50	41	69	44	36	60	39	32
			Exposed	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	65	54	72	60	49	72	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	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	84	84	54	84	60	46	84	53	39	84	47	33
			Exposed	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	57	84	61	46	84	52	38	84	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	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	78	78	78	78	78	58	78	71	50	75	59	43
			Exposed	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	58	78	65	49	63	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	60	70	70	51	70	61	43	70	53	38	64	46	33	56	41	29	50	36	39
			Exposed	70	70	70	70	70	64	70	70	57	70	70	52	70	69	47	70	61	43	70	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	63	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	72	72	63	72	72	56	72	61	51	72	55	46	72	50	42	72	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	65	84	66	51	84	56	42	84	48	35	78	42	29	64	37	26	56	33	23
			Exposed	84	84	84	84	84	84	84	84	60	84	76	52	84	61	46	84	55	41	84	51	36	80	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	65	78	78	53	77	61	44	59	53	38	52	47	33	46	42	28
			Exposed	78	78	78	78	78	78	78	78	78	78	78	71	78	78	58	78	78	52	78	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	70	72	72	60	72	72	55	72	72	50	72	60	42	72	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	72	72	60	72	72	54	72	72	48	72	61	43	72	56	39	72	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	72	72	72	72	72	72	72	72	65	72	72	59	72	64	53	72	59	48	72	54	44	72	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	72	64	53	72	57	47	72	51	42	72	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	68	92	92	56	92	65	50	92	55	40	92	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	92	92	65	92	92	54	92	62	47	92	56	42	92	51	37	92	46	33	78	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	64	84	83	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	84	84	84	84	84	84	84	84	60	84	84	53	84	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	47	58	58	41	58	52	37
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	47	58	57	40	58	49	35	58	43	31	52	38	27	46	34	36
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	55	61	57	47	61	50	41	59	44	36	58	39	32
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	61	60	49	61	50	42	61	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	54	66	60	46	66	53	39	66	47	33
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	57	66	61	46	66	52	38	66	45	32	66	39	27	59	35	24	53	31	21
		27-45	Interior	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	62	62	58	62	62	50	62	59	43
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	62	49	62	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	43	58	53	38	58	46	33	56	41	29	50	36	39
			Exposed	58	58	58	58	58	58	58	58	57	58	58	52	58	58	47	58	58	43	58	55	39	58	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	54	45	60	46	38	58	40	33	54	35	29	47	31	39	42	27	34
			Exposed	61	61	61	61	61	56	61	61	51	61	55	46	61	50	42	61	46	38	61	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	66	66	51	66	56	42	66	48	35	66	42	29	64	37	26	56	33	23
			Exposed	66	66	66	66	66	66	66	66	60	66	66	52	66	61	46	66	55	41	66	51	36	66	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	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	53	62	61	44	59	53	38	52	47	33	46	42	28
			Exposed	62	62	62	62	62	62	62	62	62	62	62	62	62	62	58	62	62	52	62	62	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	62	55	62	62	50	62	60	42	62	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	62	62	60	62	62	54	62	62	48	62	61	43	62	56	39	62	51	36	62	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	66	66	66	66	66	66	66	66	65	66	66	59	66	64	53	66	59	48	66	54	44	65	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	66	64	53	66	57	47	66	51	42	66	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	72	72	56	72	65	50	72	55	40	72	47	33	72	41	28	61	36	24	53	31	21	47	28	29
			Exposed	72	72	65	72	72	54	72	62	47	72	56	42	72	51	37	72	46	33	72	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	64	67	67	51	67	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	67	67	67	67	67	67	67	67	60	67	67	53	67	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
50	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	37
			Exposed	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	40	47	47	35	47	43	31	47	38	27	46	34	36
		7-20	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	47	51	50	41	51	44	36	49	39	32
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	50	42	51	43	36	51	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	53	39	54	47	33
			Exposed	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	46	54	52	38	54	45	32	54	39	27	54	35	24	53	31	21
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	43
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	51	41	51	49	35	49	44	30	43	39	26
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	38	47	46	33	47	41	29	47	36	39
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	39	47	47	33	47	40	28	47	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	46	38	50	40	33	48	35	29	46	31	39	42	27	34
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	51	50	42	51	46	38	51	42	35	51	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	51	54	54	42	54	48	35	54	42	29	54	37	26	54	33	23
			Exposed	54	54	54	54	54	54	54	54	54	54	54	52	54	54	46	54	54	41	54	51	36	54	43	30	54	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	44	51	51	38	51	47	33	46	42	28
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	47	51	51	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	42	52	51	36	52	44	32	52	39	28	47	34	37	42	30	33
			Exposed	52	52	52	52	52	52	52	52	48	52	52	43	52	52	39	52	51	36	52	46	33	52	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	54	44	55	45	38	53	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	57	57	53	57	57	47	57	51	42	57	46	38	57	42	35	57	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	59	50	59	55	40	59	47	33	59	41	28	59	36	24	53	31	21	47	28	29
			Exposed	59	59	59	59	59	54	59	59	47	59	56	42	59	51	37	59	46	33	59	42	29	59	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	56	56	43	56	51	36	50	45	31	44	39	27	39	35	23
			Exposed	56	56	56	56	56	56	56	56	56	56	56	53	56	56	47	56	56	42	56	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	31	40	38	27	40	34	36
		7-20	Interior	43	43	43	43	43	43	43	43	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	43	43	36	43	39	32
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	36	43	37	31	43	33	27	43	29	36	39	39	32
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	33
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	45	32	46	39	27	46	35	24	46	31	21
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	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	43	43	35	43	43	30	43	39	26
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	29	40	36	39
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	33	40	40	28	40	35	37	40	30	33	37	27	29	33	36	26
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	40	33	42	35	29	41	31	39	39	27	34
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	35	43	35	29	43	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	35	46	42	29	46	37	26	46	33	23
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	43	30	46	37	25	46	32	22	46	28	29	42	37	25	37	33	23
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	33	43	42	28
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	32	43	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	36	44	44	32	44	39	28	44	34	37	42	30	33
			Exposed	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	36	44	44	33	44	39	28	44	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	48	45	38	47	39	32	45	34	28	43	29	37	40	26	33	35	35	29
			Exposed	48	48	48	48	48	47	48	48	42	48	46	38	48	42	35	48	38	32	48	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	40	50	47	33	50	41	28	50	36	24	50	31	21	47	28	29
			Exposed	50	50	50	50	50	50	50	50	47	50	50	42	50	50	37	50	46	33	50	42	29	50	36	25	50	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	43	48	48	36	48	45	31	44	39	27	39	35	23
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	47	42	48	48	42	48	48	38	48	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
70	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	27	35	34	36
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	33	27	37	29	36	37	39	32
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	33
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	32	40	39	27	40	35	24	40	31	21
		27-45	Interior	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
			Exposed	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	35	38	38	30	38	38	26
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	29	35	35	39
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	28	35	35	37	35	30	33	35	27	29	33	36	26
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	35	29	37	31	39	35	27	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	35	29	37	30	38	37	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	29	40	37	26	40	33	23
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	30	40	37	25	40	32	22	40	28	29	40	37	25	37	33	23
		27-45	Interior	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	33	38	38	28
			Exposed	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	32	38	38	27	38	35	23	34	31	30	30	27	26
	D	0-7	Interior	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	38	38	32	38	38	28	38	34	37	38	30	33
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	33	38	38	28	38	34	36	38	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	39	32	40	34	28	39	29	37	38	26	33	35	35	29
			Exposed	41	41	41	41	41	41	41	41	41	41	38	41	41	35	41	38	32	41	35	29	41	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	33	44	41	28	44	36	24	44	31	21	44	28	29
			Exposed	44	44	44	44	44	44	44	44	44	44	42	44	44	37	44	44	33	44	42	29	44	36	25	44	31	21	44	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	36	41	41	31	41	39	27	39	35	23
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	31	41	39	26	37	33	22	33	29	28	29	26	25	39	35	21
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	36
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	29	36	33	39	32
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	35	24	35	31	21
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	33	26
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	39
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	37	30	30	33	30	27	29	30	36	26
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	31	39	32	27	34
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	30	38	33	26	33	33	35	29	31	31	25	27	27	23
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	29	35	35	26	35	33	23
			Exposed	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	25	35	32	22	35	28	29	35	37	25	35	33	23
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	27	33	33	23	33	31	30	30	27	26
	D	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	28	34	34	37	34	30	33
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	28	34	34	36	34	29	31	34	39	27	31	34	24	27	30	21
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	34	28	35	29	37	34	26	33	33	35	29
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	35	29	36	30	37	36	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	33	39	39	28	39	36	24	39	31	21	39	28	29
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	33	39	39	29	39	36	25	39	31	21	39	27	28	39	35	24	35	31	21	31	28	19
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	37	27	37	35	23
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	26	37	33	22	33	29	28	29	26	25	39	35	21

* 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 7-16	II	30 ft	Ss = 1.25	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	36
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	36	29	39	32			
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	31	24	31	31	21			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	39
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	37	27	27	33	27	27	29	27	36	~~26~~						
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	39	29	27	34			
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	38	29	26	33	29	35	29	29	31	25	27	27	~~23~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	23
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	31	22	31	28	29	31	37	25	31	33	23
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23	30	30	30	30	27	26
	D	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	37	30	30	33
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	36	30	29	31	30	39	27	30	34	~~24~~	27	30	~~21~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	28	32	29	37	31	26	33	30	35	29
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	30	37	33	39	32	33	33	28	29	29	~~24~~	39	26	~~21~~	35	~~23~~	~~19~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	28	35	35	24	35	31	21	35	28	29
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	29	35	35	25	35	31	21	35	27	28	35	35	24	35	31	21	31	28	~~19~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	33	23
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	26	33	33	22	33	29	28	29	26	25	39	35	21
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	36	27	39	32
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	21
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37	24	24	33	24	24	29	24	36	~~26~~						
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	39	27	27	34			
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	38	27	26	33	27	35	29	27	31	25	27	27	~~23~~
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	22	28	28	29	28	37	25	28	33	23
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	41	30	41	41	26
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	37	27	27	33
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	36	27	27	31	27	39	27	27	34	~~24~~	27	30	~~21~~			
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	37	29	26	33	28	35	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	37	29	39	32	29	33	28	29	29	~~24~~	39	26	~~21~~	35	~~23~~	~~19~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	24	31	31	21	31	28	29
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	31	21	31	27	28	31	35	24	31	31	21	31	28	~~19~~
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	29	28	29	26	25	39	35	21

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	65	73	73	55	73	73	47	73	61	36	73	48	31	63	39	26	51	33	23	42	29	20	35	26	18
			Exposed	73	73	64	73	73	53	73	73	44	73	64	37	73	54	33	73	47	30	68	41	28	52	33	23	41	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	73	73	73	73	73	73	73	73	73	73	73	68	73	73	55	73	67	46	73	56	39	69	41	32	56	33	27	46	28	23	39	25	20	33	22	18	30	19	16
			Exposed	73	73	55	73	63	44	73	51	36	71	42	32	62	36	29	55	32	27	49	30	24	39	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	60	74	57	42	74	43	33	69	34	27	57	30	23	48	26	19	41	23	16
			Exposed	74	74	74	74	74	69	74	73	55	74	59	44	74	50	37	74	42	32	73	36	28	58	30	23	47	26	19	39	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	55	75	62	42	64	48	34	49	39	29	38	33	25	33	29	21
			Exposed	75	75	75	75	75	75	75	75	69	75	75	57	75	72	48	75	61	41	71	52	36	50	39	29	37	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	73	73	73	73	73	60	73	73	50	73	72	42	73	61	36	73	53	32	73	46	30	58	36	25	45	30	21	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	73	61	36	73	51	32	71	43	28	60	37	26	52	33	23	45	30	21	39	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	73	73	63	73	73	50	73	59	41	73	48	35	69	40	31	60	35	29	53	32	26	43	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	68	40	31	58	34	28	50	30	25	44	27	23	39	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	74	74	74	74	74	74	74	74	64	74	68	51	74	57	42	74	48	35	74	41	31	64	32	25	52	28	21	43	24	17	36	21	14	32	18	13	28	16	17
			Exposed	74	56	42	74	45	34	74	38	30	66	33	26	58	30	23	51	27	20	45	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	75	75	75	75	75	75	75	75	75	75	75	65	75	75	55	75	69	46	75	59	40	57	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	14
			Exposed	75	75	54	75	66	45	75	55	37	60	46	32	49	39	29	41	34	26	35	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	73	73	53	73	73	44	73	63	37	73	54	33	73	46	30	66	40	27	57	35	25	44	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	73	46	30	64	39	27	53	34	24	46	30	21	39	28	19	35	25	18	32	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	73	65	45	73	51	36	71	42	32	61	35	29	54	32	26	48	29	24	42	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	54	32	26	46	28	23	40	25	21	35	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	74	74	71	74	73	55	74	59	44	74	49	36	74	41	32	71	35	28	63	32	25	50	27	20	41	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	74	41	31	69	34	27	59	31	23	52	28	21	46	25	18	40	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	75	75	75	75	75	69	75	75	57	75	71	48	75	60	40	68	51	35	56	44	31	40	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	75	59	40	65	49	34	52	41	30	42	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
10	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	36	52	48	31	52	39	26	51	33	23	42	29	20	35	26	18
			Exposed	52	52	52	52	52	52	52	52	44	52	52	37	52	52	33	52	47	30	52	41	28	52	33	23	41	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	39	52	41	32	52	33	27	46	28	23	39	25	20	33	22	18	30	19	16
			Exposed	52	52	52	52	52	44	52	51	36	52	42	32	52	36	29	52	32	27	49	30	24	39	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	60	68	57	42	68	43	33	68	34	27	57	30	23	48	26	19	41	23	16
			Exposed	68	68	68	68	68	68	68	68	55	68	59	44	68	50	37	68	42	32	68	36	28	58	30	23	47	26	19	39	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	55	72	62	42	64	48	34	49	39	29	38	33	25	33	29	21
			Exposed	72	72	72	72	72	72	72	72	69	72	72	57	72	72	48	72	61	41	71	52	36	50	39	29	37	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	52	52	52	52	52	52	52	52	50	52	52	42	52	52	36	52	52	32	52	46	30	52	36	25	45	30	21	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	52	52	36	52	51	32	52	43	28	52	37	26	52	33	23	45	30	21	39	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	52	52	52	52	52	50	52	52	41	52	48	35	52	40	31	52	35	29	52	32	26	43	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	52	40	31	52	34	28	50	30	25	44	27	23	39	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	68	68	68	68	68	68	68	68	64	68	68	51	68	57	42	68	48	35	68	41	31	64	32	25	52	28	21	43	24	17	36	21	14	32	18	13	28	16	17
			Exposed	68	56	42	68	45	34	68	38	30	66	33	26	58	30	23	51	27	20	45	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	65	72	72	55	72	69	46	72	59	40	57	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	14
			Exposed	72	72	54	72	66	45	72	55	37	60	46	32	49	39	29	41	34	26	35	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	52	52	52	52	52	44	52	52	37	52	52	33	52	46	30	52	40	27	52	35	25	44	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	52	46	30	52	39	27	52	34	24	46	30	21	39	28	19	35	25	18	32	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	52	52	45	52	51	36	52	42	32	52	35	29	52	32	26	48	29	24	42	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	52	32	26	46	28	23	40	25	21	35	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	70	70	70	70	70	55	70	59	44	70	49	36	70	41	32	70	35	28	63	32	25	50	27	20	41	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	70	41	31	69	34	27	59	31	23	52	28	21	46	25	18	40	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	74	74	74	74	74	69	74	74	57	74	71	48	74	60	40	68	51	35	56	44	31	40	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	74	59	40	65	49	34	52	41	30	42	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
20	B	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	31	36	36	26	36	33	23	36	29	20	35	26	18			
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	28	36	33	23	36	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	33	27	36	28	23	36	25	20	33	22	18	30	19	16
			Exposed	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	32	27	36	30	24	36	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	42	54	43	33	54	34	27	54	30	23	48	26	19	41	23	16
			Exposed	54	54	54	54	54	54	54	54	54	54	54	44	54	50	37	54	42	32	54	36	28	54	30	23	47	26	19	39	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	42	53	48	34	49	39	29	38	33	25	33	29	21
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	41	53	52	36	50	39	29	37	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	30	36	36	25	36	30	21	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	36	36	36	36	36	32	36	36	28	36	36	26	36	33	23	36	30	21	36	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31	36	35	29	36	32	26	36	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	36	36	31	36	34	28	36	30	25	36	27	23	36	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	51	54	54	42	54	48	35	54	41	31	54	32	25	52	28	21	43	24	17	36	21	14	32	18	13	28	16	17
			Exposed	54	54	42	54	45	34	54	38	30	54	33	26	54	30	23	51	27	20	45	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	46	53	53	40	53	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	14
			Exposed	53	53	53	53	53	45	53	53	37	53	46	32	49	39	29	41	34	26	35	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	35	25	36	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	36	36	30	36	36	27	36	34	24	36	30	21	36	28	19	35	25	18	32	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	36	36	36	36	36	36	36	36	32	36	35	29	36	32	26	36	29	24	36	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	36	32	26	36	28	23	36	25	21	35	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	56	56	56	56	56	55	56	56	44	56	49	36	56	41	32	56	35	28	56	32	25	50	27	20	41	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	56	41	31	56	34	27	56	31	23	52	28	21	46	25	18	40	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	48	56	56	40	56	51	35	55	44	31	40	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	56	56	40	56	49	34	52	41	30	42	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~

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UNIRAC

ASCE 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	26	35	33	23	35	29	20	35	26	18
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	28	35	33	23	35	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	33	27	36	28	23	36	25	20	33	22	18	30	19	16
			Exposed	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	32	27	36	30	24	36	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	33	42	34	27	42	30	23	42	26	19	41	23	16
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	36	28	42	30	23	42	26	19	39	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	29	38	33	25	33	29	21
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	29	37	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	30	35	35	25	35	30	21	35	26	19	32	23	16	28	20	22	25	18	19
			Exposed	35	35	35	35	35	32	35	35	28	35	35	26	35	33	23	35	30	21	35	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31	36	35	29	36	32	26	36	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	36	36	31	36	34	28	36	30	25	36	27	23	36	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	35	42	41	31	42	32	25	42	28	21	42	24	17	36	21	14	32	18	13	28	16	17
			Exposed	42	42	42	42	42	34	42	38	30	42	33	26	42	30	23	42	27	20	42	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	32	39	35	26	34	30	22	29	26	19	26	23	16	23	21	14
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	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	35	25	36	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
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		7-20	Interior	36	36	36	36	36	36	36	36	32	36	35	29	36	32	26	36	29	24	36	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
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		20-27	Interior	46	46	46	46	46	46	46	46	44	46	46	36	46	41	32	46	35	28	46	32	25	46	27	20	41	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	46	41	31	46	34	27	46	31	23	46	28	21	46	25	18	40	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	35	43	43	31	40	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	43	43	40	43	43	34	43	41	30	42	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
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			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	23	29	28	20	29	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	28	23	31	25	20	30	22	18	29	19	16
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			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	28	33	30	23	33	26	19	33	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	29	21
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	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	21	29	26	19	29	23	16	28	20	22	25	18	19
			Exposed	29	29	29	29	29	29	29	29	28	29	29	26	29	29	23	29	29	21	29	27	19	29	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	27	22	30	23	19	29	20	16	27	17	22	23	15	19	21	21	17
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		20-27	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	32	25	33	28	21	33	24	17	33	21	14	32	18	13	28	16	17
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		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	30	22	29	26	19	26	23	16	23	21	14
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	31	25	31	30	21	31	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	31	31	30	31	31	27	31	31	24	31	30	21	31	28	19	31	25	18	31	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	32	26	33	29	24	33	27	22	32	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	33	32	26	33	28	23	33	25	21	33	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	35	28	36	32	25	36	27	20	36	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	36	36	31	36	34	27	36	31	23	36	28	21	36	25	18	36	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	34	34	34	34	34	34	34	34	30	34	34	26	34	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
50	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	18
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	21	23	24	19	20	23	17	18
		7-20	Interior	26	26	26	26	26	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	26	25	20	25	22	18	25	19	16
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	25	21	26	21	18	26	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	26	19	27	23	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	26	19	27	22	16	27	20	13	27	17	18	26	15	16
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21
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	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	23	16	24	20	22	24	18	19
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		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	23	19	25	20	16	24	17	22	23	15	19	21	21	17
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		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	21	27	24	17	27	21	14	27	18	13	27	16	17	27	21	17
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		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	23	16	23	21	14
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	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	25	18	26	22	16	26	19	21	23	17	18	21	23	16
			Exposed	26	26	26	26	26	26	26	26	24	26	26	21	26	26	19	26	25	18	26	23	16	26	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	27	22	28	22	19	27	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	28	28	26	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	25	30	27	20	30	23	16	30	20	14	30	18	18	26	15	16	23	21	14
			Exposed	30	30	30	30	30	27	30	30	23	30	28	21	30	25	18	30	23	16	30	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23	28	28	21	28	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	23	20	19	20	20	17	18
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	19	16
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	21	18	22	18	15	22	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	16
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	22	16	23	20	13	23	17	18	23	15	16
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	15	21	19	13
	C	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	22	20	18	19
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	21	20	17	18	20	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	16	21	17	22	20	15	19	20	21	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	17	22	22	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	17	23	21	14	23	18	13	23	16	17
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	21	15	23	18	12	23	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	21	14
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	19	21	22	17	18	21	23	16
			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	19	21	22	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	22	19	23	19	16	22	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	19	16	24	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	23	16	25	20	14	25	18	18	25	15	16	23	21	14
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	18	25	23	16	25	21	14	25	18	12	25	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	22	15	22	19	13	19	17	17
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70	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	17	20	17	17	18
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	20	19	22	18	19	19	~~16~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	13	20	17	~~18~~	20	15	16
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	22	17	17	19
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	18	17	23	16	17	20	~~14~~	16	18	~~13~~
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	22	18	15	19	18	21	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	22	19	23	19	19	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	14	20	18	13	20	16	17
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15	20	18	12	20	16	16	20	21	14	20	18	~~12~~	18	16	~~11~~
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	21	19	17	18	19	23	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	21	19	17	18	19	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	19	16	20	17	21	19	22	18	19	19	16	17	17	~~14~~
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	17	22	21	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	16	22	20	14	22	18	18	22	15	16	22	21	14
			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	21	14	22	18	12	22	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	13	19	17	17
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
80	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	20	15	15	18
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	20	16	22	18	16	19	~~16~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	17	18	17	15	16
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	19
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	15	18	15	23	16	15	20	~~14~~	15	18	~~13~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	15	19	16	21	17
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	23	19	16	20	16	16	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	16	16	17	21	14	17	18	~~12~~	17	16	~~11~~
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	18	17	23	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	18	17	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	17	21	18	22	18	17	19	16	16	17	~~14~~
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	17	22	18	22	18	18	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	18	18	19	15	16	19	21	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	18	12	19	15	16	19	20	~~14~~	19	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	17
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	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	13
			Exposed	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	13	13	18
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	20	15	22	18	15	19	~~16~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	18	24	23	16
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20
	C	0-7	Interior	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	19
			Exposed	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	20	16	13	20	~~14~~	13	18	~~13~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	19	15	21	17
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	23	19	15	20	16	15	17	~~14~~	22	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	21	14	24	18	~~12~~	24	16	~~11~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	15	22	20	~~13~~
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	15	18	15	23	16
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	15	18	15	22	~~15~~	15	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21	16	22	18	16	19	16	15	17	~~14~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	22	18	16	19	~~16~~	16	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	18	17	15	16	17	21	14
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	16	17	20	~~14~~	17	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	25	16	24	22	14	22	19	~~12~~	19	17	~~11~~
100	B	0-7	Interior	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	12
			Exposed	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	18
		7-20	Interior	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	13
			Exposed	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	20	18	13	19	~~16~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	C	0-7	Interior	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
			Exposed	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	18	16	12	18	~~14~~	12	18	~~13~~
		7-20	Interior	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	19	13	20	17
			Exposed	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	22	19	13	20	16	13	17	~~14~~	20	~~15~~	~~13~~	20	~~13~~	~~11~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17
			Exposed	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	14	21	18	~~12~~	21	16	~~11~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	15	20	20	~~13~~
	D	0-7	Interior	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	20	16
			Exposed	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	20	~~15~~	13	19	~~13~~	20	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	22	18	14	19	16	14	17	~~14~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	18	15	19	~~16~~	15	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	23	16	24	21	14
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	18	24	23	16	24	20	~~14~~	24	17	~~12~~	24	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	22	14	22	19	~~12~~	19	17	~~11~~

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																												
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																												
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	93	141	136	60	141	97	52	139	65	46	131	57	40	78	50	36
			Exposed	141	141	141	141	141	141	141	141	137	141	141	113	141	141	66	141	135	60	141	118	55	140	65	46	119	56	40	69	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	62	141	65	53	141	56	46	83	49	40	66	43	36	58	38	32
			Exposed	141	141	141	141	141	141	141	141	140	141	141	64	141	137	58	141	64	53	141	58	48	85	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	72	143	83	53	143	59	45	137	52	38	92	46	33
			Exposed	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	142	64	143	135	56	143	60	45	136	51	37	85	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	139	146	144	75	146	134	56	146	65	48	64	58	42
			Exposed	146	146	146	146	146	146	146	146	146	146	146	146	146	146	145	146	146	138	146	146	131	146	134	57	145	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	141	141	141	141	141	141	141	141	141	141	141	135	141	141	91	141	140	64	141	134	59	141	80	50	134	60	42	86	52	37	62	45	32	55	40	28	49	35	38
			Exposed	141	141	89	141	138	63	141	131	56	141	87	51	140	65	46	133	59	42	102	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	141	141	141	141	141	141	141	141	141	141	141	137	141	141	62	141	135	57	141	63	52	141	53	44	73	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	141	141	62	141	82	55	141	60	50	141	54	45	84	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	140	62	143	64	50	141	55	41	131	47	34	75	41	29	62	37	25	55	32	22
			Exposed	143	143	143	143	143	141	143	137	58	143	66	51	143	59	45	140	54	40	134	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	143	146	146	136	146	140	63	146	83	52	138	59	43	58	52	37	51	46	32	45	41	28
			Exposed	146	146	146	146	146	141	146	146	133	146	141	65	146	134	57	146	77	51	142	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	141	141	141	141	141	137	141	141	109	141	141	65	141	134	59	141	109	54	141	78	49	133	59	42	77	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	141	134	59	141	98	52	141	69	47	134	60	42	104	54	39	74	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	141	141	141	141	141	140	141	141	64	141	136	57	141	63	52	141	57	47	141	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	141	63	52	141	56	46	88	50	42	73	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	143	143	143	143	143	143	143	143	143	143	143	143	143	141	63	143	133	55	143	63	49	140	54	40	91	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	143	140	62	143	85	53	143	61	46	141	55	41	134	50	36	89	45	32	75	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	146	146	146	146	146	146	146	146	146	146	146	144	146	146	137	146	146	90	146	139	62	146	74	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	146	146	136	146	144	75	146	136	58	146	84	52	142	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
10	B	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	93	100	100	60	100	97	52	100	65	46	100	57	40	78	50	36
			Exposed	100	100	100	100	100	100	100	100	100	100	100	100	100	100	66	100	100	60	100	100	55	100	65	46	100	56	40	69	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	62	101	65	53	101	56	46	83	49	40	66	43	36	58	38	32
			Exposed	101	101	101	101	101	101	101	101	101	101	101	64	101	101	58	101	64	53	101	58	48	85	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	72	131	83	53	131	59	45	131	52	38	92	46	33
			Exposed	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	64	131	131	56	131	60	45	131	51	37	85	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	75	134	134	56	134	65	48	64	58	42
			Exposed	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	131	134	134	57	134	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	91	100	100	64	100	100	59	100	80	50	100	60	42	86	52	37	62	45	32	55	40	28	49	35	38
			Exposed	100	100	89	100	100	63	100	100	56	100	87	51	100	65	46	100	59	42	100	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	62	101	101	57	101	63	52	101	53	44	73	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	101	101	62	101	82	55	101	60	50	101	54	45	84	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	131	62	131	64	50	131	55	41	131	47	34	75	41	29	62	37	25	55	32	22
			Exposed	131	131	131	131	131	131	131	131	58	131	66	51	131	59	45	131	54	40	131	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	63	134	83	52	134	59	43	58	52	37	51	46	32	45	41	28
			Exposed	134	134	134	134	134	134	134	134	133	134	134	65	134	134	57	134	77	51	134	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	65	100	100	59	100	100	54	100	78	49	100	59	42	77	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	100	100	59	100	98	52	100	69	47	100	60	42	100	54	39	74	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	101	101	101	101	101	101	101	101	64	101	101	57	101	63	52	101	57	47	101	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	101	63	52	101	56	46	88	50	42	73	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	135	135	135	135	135	135	135	135	135	135	135	135	135	135	63	135	133	55	135	63	49	135	54	40	91	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	135	135	62	135	85	53	135	61	46	135	55	41	134	50	36	89	45	32	75	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	137	138	138	90	138	138	62	138	74	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	138	138	136	138	138	75	138	136	58	138	84	52	138	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
20	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	60	70	70	60	70	70	52	70	65	46	70	57	40	70	50	36
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	60	70	70	55	70	65	46	70	56	40	69	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	65	53	71	56	46	71	49	40	66	43	36	58	38	32
			Exposed	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	64	53	71	58	48	71	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	72	104	83	53	104	59	45	104	52	38	92	46	33
			Exposed	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	64	104	104	56	104	60	45	104	51	37	85	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	75	101	101	56	101	65	48	64	58	42
			Exposed	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	57	101	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	59	70	70	50	70	60	42	70	52	37	62	45	32	55	40	28	49	35	38
			Exposed	70	70	70	70	70	63	70	70	56	70	70	51	70	65	46	70	59	42	70	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	71	71	62	71	71	55	71	60	50	71	54	45	71	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	62	104	64	50	104	55	41	104	47	34	75	41	29	62	37	25	55	32	22
			Exposed	104	104	104	104	104	104	104	104	58	104	66	51	104	59	45	104	54	40	104	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	63	101	83	52	95	59	43	58	52	37	51	46	32	45	41	28
			Exposed	101	101	101	101	101	101	101	101	101	101	101	65	101	101	57	101	77	51	101	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	65	70	70	59	70	70	54	70	70	49	70	59	42	70	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	70	70	59	70	70	52	70	69	47	70	60	42	70	54	39	70	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	71	71	71	71	71	71	71	71	64	71	71	57	71	63	52	71	57	47	71	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	71	63	52	71	56	46	71	50	42	71	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	109	109	109	109	109	109	109	109	109	109	109	109	109	109	63	109	109	55	109	63	49	109	54	40	91	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	109	109	62	109	85	53	109	61	46	109	55	41	109	50	36	89	45	32	75	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	90	106	106	62	106	74	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	106	106	106	106	106	75	106	106	58	106	84	52	106	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	60	68	68	52	68	65	46	68	57	40	68	50	36
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	60	68	68	55	68	65	46	68	56	40	68	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	65	53	71	56	46	71	49	40	66	43	36	58	38	32
			Exposed	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	64	53	71	58	48	71	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	72	82	82	72	82	82	53	82	59	45	82	52	38	82	46	33
			Exposed	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	64	82	82	56	82	60	45	82	51	37	82	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	75	76	76	56	76	65	48	64	58	42
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	57	76	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	68	59	68	68	50	68	60	42	68	52	37	62	45	32	55	40	28	49	35	38
			Exposed	68	68	68	68	68	63	68	68	56	68	68	51	68	65	46	68	59	42	68	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	71	71	62	71	71	55	71	60	50	71	54	45	71	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	62	82	64	50	82	55	41	82	47	34	75	41	29	62	37	25	55	32	22
			Exposed	82	82	82	82	82	82	82	82	58	82	66	51	82	59	45	82	54	40	82	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	63	76	76	52	74	59	43	58	52	37	51	46	32	45	41	28
			Exposed	76	76	76	76	76	76	76	76	76	76	76	65	76	76	57	76	76	51	76	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	65	70	70	59	70	70	54	70	70	49	70	59	42	70	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	70	70	59	70	70	52	70	69	47	70	60	42	70	54	39	70	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	24
		7-20	Interior	71	71	71	71	71	71	71	71	64	71	71	57	71	63	52	71	57	47	71	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	71	63	52	71	56	46	71	50	42	71	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	89	89	89	89	89	89	89	89	89	89	89	89	89	89	63	89	89	55	89	63	49	89	54	40	89	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	89	89	62	89	85	53	89	61	46	89	55	41	89	50	36	89	45	32	75	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	62	82	74	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	82	82	82	82	82	75	82	82	58	82	82	52	82	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
40	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	46	57	57	40	57	50	36
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	46	57	56	40	57	48	34	57	42	30	51	37	40	45	33	35
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	60	56	46	60	49	40	58	43	36	56	38	32
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	60	58	48	60	49	41	60	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	53	64	59	45	64	52	38	64	46	33
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	60	45	64	51	37	64	44	31	64	39	26	58	34	23	51	30	31
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	56	60	60	48	60	58	42
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	47	60	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	42	57	52	37	57	45	32	55	40	28	49	35	38
			Exposed	57	57	57	57	57	57	57	57	56	57	57	51	57	57	46	57	57	42	57	54	38	57	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	53	44	59	45	37	57	39	32	52	34	28	46	30	38	41	27	34
			Exposed	60	60	60	60	60	55	60	60	50	60	54	45	60	49	41	60	45	37	60	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	62	64	64	50	64	55	41	64	47	34	64	41	29	62	37	25	55	32	22
			Exposed	64	64	64	64	64	64	64	64	58	64	64	51	64	59	45	64	54	40	64	49	36	64	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	52	60	59	43	58	52	37	51	46	32	45	41	28
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	51	60	60	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	61	61	49	61	59	42	61	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	61	61	59	61	61	52	61	61	47	61	60	42	61	54	39	61	50	35	61	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	24
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	57	64	63	52	64	57	47	64	52	43	63	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	64	63	52	64	56	46	64	50	42	64	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	63	70	70	55	70	63	49	70	54	40	70	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	70	70	62	70	70	53	70	61	46	70	55	41	70	50	36	70	45	32	70	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	62	66	66	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	66	66	66	66	66	66	66	66	58	66	66	52	66	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
50	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	36	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	34	46	42	30	46	37	40	45	33	35
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	49	40	50	43	36	48	38	32
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	49	41	50	42	35	50	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	45	53	52	38	53	46	33
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	45	53	51	37	53	44	31	53	39	26	53	34	23	51	30	31
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	42
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	40	50	48	34	48	43	29	42	38	26
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	37	46	45	32	46	40	28	46	35	38
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	38	46	46	32	46	39	28	46	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	45	37	49	39	32	47	34	28	45	30	38	41	27	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	45	50	49	41	50	45	37	50	41	34	50	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	41	53	47	34	53	41	29	53	37	25	53	32	22
			Exposed	53	53	53	53	53	53	53	53	53	53	53	51	53	53	45	53	53	40	53	49	36	53	42	29	53	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50	50	37	50	46	32	45	41	28
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	50	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	51	42	51	50	36	51	44	31	51	38	41	46	34	36	41	30	32
			Exposed	51	51	51	51	51	51	51	51	47	51	51	42	51	51	39	51	50	35	51	45	32	51	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	24
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	47	55	52	43	54	44	37	52	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	55	55	52	55	55	46	55	50	42	55	45	38	55	41	34	55	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	55	58	58	49	58	54	40	58	46	32	58	40	27	58	35	24	52	31	32	46	27	28
			Exposed	58	58	58	58	58	53	58	58	46	58	55	41	58	50	36	58	45	32	58	41	29	58	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	50	55	55	42	55	50	35	49	44	30	43	38	26	38	34	23	34	30	23
			Exposed	55	55	55	55	55	55	55	55	55	55	55	52	55	55	46	55	55	41	55	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	30	39	37	40	39	33	35
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	38	32
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	35	42	37	30	42	32	26	42	28	35	38	38	31
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	37	45	44	31	45	39	26	45	34	23	45	30	31
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	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	42	42	34	42	42	29	42	38	26
	C	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	28	39	35	38
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	32	39	39	28	39	34	36	39	30	32	36	40	28	32	35	25
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	39	32	41	34	28	40	30	38	39	27	34
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	37	42	41	34	42	35	29	42	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	34	45	41	29	45	37	25	45	32	22			
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	36	45	42	29	45	36	25	45	31	21	45	27	28	41	36	25	36	32	22
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	41	28
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	31	42	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	36	43	43	31	43	38	41	43	34	36	41	30	32
			Exposed	43	43	43	43	43	43	43	43	43	43	43	42	43	43	39	43	43	35	43	43	32	43	38	27	43	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	44	37	46	38	31	44	33	27	42	29	36	39	38	32	34	34	28
			Exposed	47	47	47	47	47	46	47	47	42	47	45	38	47	41	34	47	38	31	47	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	40	49	46	32	49	40	27	49	35	24	49	31	32	46	27	28
			Exposed	49	49	49	49	49	49	49	49	46	49	49	41	49	49	36	49	45	32	49	41	29	49	35	24	49	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	42	47	47	35	47	44	30	43	38	26	38	34	23
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47	47	41	47	47	37	47	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21	
70	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	40	34	33	35
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	32	26	37	28	35	37	38	31
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	33
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	31	39	39	26	39	34	23	39	30	31
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	37	26
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	28	34	34	38
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	28	34	34	36	34	30	32	34	40	28	32	35	25
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	34	28	36	30	38	35	27	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	35	29	37	30	37	37	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	29	39	37	25	39	32	22
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	29	39	36	25	39	31	21	39	27	28	39	36	25	36	32	22
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	28
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	26	37	34	23	34	30	29	30	40	26
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	37	41	37	34	36	37	30	32
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	27	37	33	35	37	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	38	31	39	33	27	38	29	36	37	38	32	34	34	28
			Exposed	40	40	40	40	40	40	40	40	40	40	40	38	40	40	34	40	38	31	40	34	28	40	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	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	32	43	40	27	43	35	24	43	31	32	43	27	28
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	32	43	41	29	43	35	24	43	30	31	43	39	27	39	35	24	34	30	21	30	27	19	
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	41	30	41	38	26	38	34	23
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	31	41	38	25	37	33	33	32	29	28	28	38	24	38	34	21	
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	30	30	35
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	26	32	28	35	32	38	31
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	26	34	34	23	34	30	31
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	39
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	38
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	36	30	30	32	30	40	28	30	35	25
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	28	32	30	38	31	27	34
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	29	32	30	37	32	39	32	32	34	28	30	30	25	41	27	22
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	29	34	34	25	34	32	22
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	29	34	34	25	34	31	21	34	27	28	34	36	25	34	32	22
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	40	49	49	34	49	46	29	45	40	26
	D	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	41	33	33	36	33	30	32
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	27	33	33	35	33	29	31	33	38	27	30	33	24	40	30	21	
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	31	36	33	27	35	29	36	33	38	32	32	34	28
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	34	28	36	29	36	36	38	31	33	33	27	43	29	24	38	25	21	34	22	19	
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	27	38	35	24	38	31	32	38	27	28
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	32	38	38	29	38	35	24	38	30	31	38	39	27	38	35	24	34	30	21	30	27	19	
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	30	36	36	26	36	34	23
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	31	36	36	25	36	33	33	32	29	28	28	38	24	38	34	21	

* 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 7-16	II	30 ft	Ss = 1.25	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	40	26	26	35
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	28	35	29	38	31
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	35	46	46	31
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39
	C	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	38
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	36	26	26	32	26	40	28	26	35	~~25~~						
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	38	29	27	34						
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	37	29	39	32	29	34	28	29	30	~~25~~	41	27	~~22~~			
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	34			
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	37	46	46	32	46	41	28	46	36	25	46	32	22
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	34	44	44	29	44	40	26
	D	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	41	29	29	36	29	29	32
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	35	29	29	31	29	38	~~27~~	29	33	~~24~~	40	30	~~21~~			
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32	32	27	32	29	36	31	38	32	30	34	28			
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	29	36	32	38	31	32	33	27	43	29	~~24~~	38	~~25~~	~~21~~	34	~~22~~	~~19~~
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	27	34	34	24	34	31	32	34	27	28
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	24	34	30	31	34	39	27	34	35	24	34	30	~~21~~	30	27	~~19~~
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34
			Exposed	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	39	48	48	33	48	43	28	43	38	24	38	34	21
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	35
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	35	26	38	31
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	35	42	42	31
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	32	24	36	28	24	35	~~25~~						
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	38	26	26	34						
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	37	26	39	32	26	34	28	26	30	~~25~~	39	27	~~22~~			
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	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	42	42	34
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	41	28	42	36	25	42	32	22			
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	29	40	40	26			
	D	0-7	Interior	26	26	26	26	26	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			
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	35	26	26	31	26	38	~~27~~	26	33	~~24~~	40	30	~~21~~			
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	36	28	38	32	28	34	28			
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	28	29	29	36	29	38	31	29	33	27	43	29	~~24~~	38	~~25~~	~~21~~	34	~~22~~	~~19~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	46	32	46	41	28
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	45	31	46	39	27	46	35	24	46	30	~~21~~	46	27	~~19~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	34
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	38	44	44	33	44	43	28	43	38	24	38	34	21

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	78	87	87	66	87	87	57	87	73	43	87	57	37	76	46	32	61	39	28	50	35	24	42	31	22
			Exposed	87	87	77	87	87	63	87	87	53	87	76	45	87	65	40	87	56	36	81	49	33	62	40	28	49	34	24	40	29	21	35	26	18	31	23	16	27	20	21
		7-20	Interior	80	80	80	80	80	80	80	80	80	80	80	80	80	80	66	80	80	55	80	67	47	80	49	38	67	39	32	55	34	28	46	30	24	40	26	22	35	23	19
			Exposed	80	80	66	80	76	53	80	61	43	80	51	39	74	43	35	66	39	32	58	35	29	47	30	25	39	26	21	34	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	72	75	68	51	75	51	39	75	41	32	68	36	27	58	31	23	49	28	20
			Exposed	75	75	75	75	75	75	75	75	65	75	71	53	75	59	44	75	50	38	75	43	34	69	36	27	56	31	22	47	27	19	40	23	16	35	21	14	31	18	19
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	66	71	71	50	71	58	40	58	46	34	45	39	29	39	35	25
			Exposed	71	71	71	71	71	71	71	71	71	71	71	68	71	71	58	71	71	49	71	62	43	59	47	35	44	39	29	37	34	24	33	29	21	29	26	18	26	23	15
	C	0-7	Interior	87	87	87	87	87	71	87	87	59	87	86	50	87	73	43	87	63	39	87	55	36	69	43	30	54	36	26	44	31	22	38	27	19	33	24	17	29	21	23
			Exposed	87	72	43	87	61	38	85	51	34	72	44	31	62	39	28	53	36	25	47	33	23	38	28	20	33	24	17	28	21	22	25	18	19	22	16	17	19	21	~~15~~
		7-20	Interior	80	80	76	80	80	60	80	71	49	80	58	42	80	48	38	72	42	34	64	38	31	51	32	27	42	27	23	36	24	20	32	21	17	28	18	23	25	16	20
			Exposed	80	48	38	70	41	33	60	36	30	53	33	27	47	30	25	42	27	22	38	25	21	32	21	17	27	18	23	24	16	20	21	21	17	18	18	~~15~~	16	16	~~13~~
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	61	75	68	50	75	57	42	75	49	37	75	39	30	62	33	25	51	29	20	43	25	17	38	22	15	33	20	13
			Exposed	75	67	50	75	54	41	75	45	35	75	40	31	69	36	27	61	33	24	54	30	22	44	25	17	37	22	15	32	19	13	28	16	17	25	22	15	22	19	~~13~~
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	65	71	71	56	71	71	48	69	53	38	50	42	31	40	36	26	35	31	22	31	28	19	28	25	17
			Exposed	71	71	65	71	71	53	71	65	45	71	55	39	59	47	35	49	41	31	42	38	28	36	32	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	87	87	64	87	87	53	87	76	45	87	64	39	87	55	36	79	48	33	69	42	30	53	36	25	42	30	22	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	87	55	36	76	46	32	64	40	29	55	36	26	47	33	23	41	30	21	38	28	19	32	23	16	27	20	21	24	17	19	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	80	77	53	80	62	43	80	50	39	74	42	35	64	38	32	57	35	29	51	32	26	41	27	22	35	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	64	38	31	55	34	28	48	30	25	42	28	23	38	25	21	35	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~
		20-27	Interior	75	75	75	75	75	66	75	71	53	75	58	43	75	49	38	75	42	33	75	38	30	60	33	24	49	28	20	41	24	16	36	21	14	32	19	19	28	16	17
			Exposed	75	49	38	75	41	32	71	37	28	62	33	25	55	30	22	48	27	19	43	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	~~13~~	18	16	~~11~~
		27-45	Interior	71	71	71	71	71	71	71	71	68	71	71	57	71	71	48	71	61	42	67	52	37	48	41	31	39	35	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	71	71	48	71	58	40	62	49	36	50	42	31	42	38	28	38	34	25	35	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	~~13~~
10	B	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	57	62	62	43	62	57	37	62	46	32	61	39	28	50	35	24	42	31	22
			Exposed	62	62	62	62	62	62	62	62	53	62	62	45	62	62	40	62	56	36	62	49	33	62	40	28	49	34	24	40	29	21	35	26	18	31	23	16	27	20	21
		7-20	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	55	62	62	47	62	49	38	62	39	32	55	34	28	46	30	24	40	26	22	35	23	19
			Exposed	62	62	62	62	62	53	62	61	43	62	51	39	62	43	35	62	39	32	58	35	29	47	30	25	39	26	21	34	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	51	67	51	39	67	41	32	67	36	27	58	31	23	49	28	20
			Exposed	67	67	67	67	67	67	67	67	65	67	67	53	67	59	44	67	50	38	67	43	34	67	36	27	56	31	22	47	27	19	40	23	16	35	21	14	31	18	19
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	50	64	58	40	58	46	34	45	39	29	39	35	25
			Exposed	64	64	64	64	64	64	64	64	64	64	64	64	64	64	58	64	64	49	64	62	43	59	47	35	44	39	29	37	34	24	33	29	21	29	26	18	26	23	15
	C	0-7	Interior	62	62	62	62	62	62	62	62	59	62	62	50	62	62	43	62	62	39	62	55	36	62	43	30	54	36	26	44	31	22	38	27	19	33	24	17	29	21	23
			Exposed	62	62	43	62	61	38	62	51	34	62	44	31	62	39	28	53	36	25	47	33	23	38	28	20	33	24	17	28	21	22	25	18	19	22	16	17	19	21	~~15~~
		7-20	Interior	62	62	62	62	62	60	62	62	49	62	58	42	62	48	38	62	42	34	62	38	31	51	32	27	42	27	23	36	24	20	32	21	17	28	18	23	25	16	20
			Exposed	62	48	38	62	41	33	60	36	30	53	33	27	47	30	25	42	27	22	38	25	21	32	21	17	27	18	23	24	16	20	21	21	17	18	18	~~15~~	16	16	~~13~~
		20-27	Interior	67	67	67	67	67	67	67	67	67	67	67	61	67	67	50	67	57	42	67	49	37	67	39	30	62	33	25	51	29	20	43	25	17	38	22	15	33	20	13
			Exposed	67	67	50	67	54	41	67	45	35	67	40	31	67	36	27	61	33	24	54	30	22	44	25	17	37	22	15	32	19	13	28	16	17	25	22	15	22	19	~~13~~
		27-45	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	64	48	64	53	38	50	42	31	40	36	26	35	31	22	31	28	19	28	25	17
			Exposed	64	64	64	64	64	53	64	64	45	64	55	39	59	47	35	49	41	31	42	38	28	36	32	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	62	62	62	62	62	53	62	62	45	62	62	39	62	55	36	62	48	33	62	42	30	53	36	25	42	30	22	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	62	55	36	62	46	32	62	40	29	55	36	26	47	33	23	41	30	21	38	28	19	32	23	16	27	20	21	24	17	19	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	62	62	53	62	62	43	62	50	39	62	42	35	62	38	32	57	35	29	51	32	26	41	27	22	35	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	62	38	31	55	34	28	48	30	25	42	28	23	38	25	21	35	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~
		20-27	Interior	69	69	69	69	69	66	69	69	53	69	58	43	69	49	38	69	42	33	69	38	30	60	33	24	49	28	20	41	24	16	36	21	14	32	19	19	28	16	17
			Exposed	69	49	38	69	41	32	69	37	28	62	33	25	55	30	22	48	27	19	43	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	~~13~~	18	16	~~11~~
		27-45	Interior	65	65	65	65	65	65	65	65	65	65	65	57	65	65	48	65	61	42	65	52	37	48	41	31	39	35	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	65	65	48	65	58	40	62	49	36	50	42	31	42	38	28	38	34	25	35	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	~~13~~
20	B	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	37	43	43	32	43	39	28	43	35	24	42	31	22
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	40	43	43	36	43	43	33	43	40	28	43	34	24	40	29	21	35	26	18	31	23	16	27	20	21
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	39	32	43	34	28	43	30	24	40	26	22	35	23	19
			Exposed	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	39	32	43	35	29	43	30	25	39	26	21	34	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	51	53	51	39	53	41	32	53	36	27	53	31	23	49	28	20
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	44	53	50	38	53	43	34	53	36	27	53	31	22	47	27	19	40	23	16	35	21	14	31	18	19
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	40	50	46	34	45	39	29	39	35	25
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	43	50	47	35	44	39	29	37	34	24	33	29	21	29	26	18	26	23	15
	C	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	39	43	43	36	43	43	30	43	36	26	43	31	22	38	27	19	33	24	17	29	21	23
			Exposed	43	43	43	43	43	38	43	43	34	43	43	31	43	39	28	43	36	25	43	33	23	38	28	20	33	24	17	28	21	22	25	18	19	22	16	17	19	21	~~15~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	34	43	38	31	43	32	27	42	27	23	36	24	20	32	21	17	28	18	23	25	16	20
			Exposed	43	43	38	43	41	33	43	36	30	43	33	27	43	30	25	42	27	22	38	25	21	32	21	17	27	18	23	24	16	20	21	21	17	18	18	~~15~~	16	16	~~13~~
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	42	53	49	37	53	39	30	53	33	25	51	29	20	43	25	17	38	22	15	33	20	13
			Exposed	53	53	50	53	53	41	53	45	35	53	40	31	53	36	27	53	33	24	53	30	22	44	25	17	37	22	15	32	19	13	28	16	17	25	22	15	22	19	~~13~~
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	38	50	42	31	40	36	26	35	31	22	31	28	19	28	25	17
			Exposed	50	50	50	50	50	50	50	50	45	50	50	39	50	47	35	49	41	31	42	38	28	36	32	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	39	43	43	36	43	43	33	43	42	30	43	36	25	42	30	22	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	43	43	36	43	43	32	43	40	29	43	36	26	43	33	23	41	30	21	38	28	19	32	23	16	27	20	21	24	17	19	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	43	43	43	43	43	43	43	43	39	43	42	35	43	38	32	43	35	29	43	32	26	41	27	22	35	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	43	38	31	43	34	28	43	30	25	42	28	23	38	25	21	35	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~
		20-27	Interior	55	55	55	55	55	55	55	55	53	55	55	43	55	49	38	55	42	33	55	38	30	55	33	24	49	28	20	41	24	16	36	21	14	32	19	19	28	16	17
			Exposed	55	49	38	55	41	32	55	37	28	55	33	25	55	30	22	48	27	19	43	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	~~13~~	18	16	~~11~~
		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	48	52	52	42	52	52	37	48	41	31	39	35	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	52	52	48	52	52	40	52	49	36	50	42	31	42	38	28	38	34	25	35	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	~~13~~

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

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

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

UNIRAC

ASCE 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	39	28	42	35	24	42	31	22
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	42	33	42	40	28	42	34	24	40	29	21	35	26	18	31	23	16	27	20	21
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	39	32	43	34	28	43	30	24	40	26	22	35	23	19
			Exposed	43	43	43	43	43	43	43	43	43	43	43	39	43	43	35	43	39	32	43	35	29	43	30	25	39	26	21	34	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	43	43	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	43	41	32	43	36	27	43	31	23	43	28	20
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	34	43	36	27	43	31	22	43	27	19	40	23	16	35	21	14	31	18	19
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	34	41	39	29	39	35	25
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	39	29	37	34	24	33	29	21	29	26	18	26	23	15
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	39	42	42	36	42	42	30	42	36	26	42	31	22	38	27	19	33	24	17	29	21	23
			Exposed	42	42	42	42	42	38	42	42	34	42	42	31	42	39	28	42	36	25	42	33	23	38	28	20	33	24	17	28	21	22	25	18	19	22	16	17	19	21	~~15~~
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	34	43	38	31	43	32	27	42	27	23	36	24	20	32	21	17	28	18	23	25	16	20
			Exposed	43	43	38	43	41	33	43	36	30	43	33	27	43	30	25	42	27	22	38	25	21	32	21	17	27	18	23	24	16	20	21	21	17	18	18	~~15~~	16	16	~~13~~
		20-27	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	37	43	39	30	43	33	25	43	29	20	43	25	17	38	22	15	33	20	13
			Exposed	43	43	43	43	43	41	43	43	35	43	40	31	43	36	27	43	33	24	43	30	22	43	25	17	37	22	15	32	19	13	28	16	17	25	22	15	22	19	~~13~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	31	40	36	26	35	31	22	31	28	19	28	25	17
			Exposed	41	41	41	41	41	41	41	41	41	41	41	39	41	41	35	41	41	31	41	38	28	36	32	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	43	43	43	43	43	43	43	43	43	43	43	39	43	43	36	43	43	33	43	42	30	43	36	25	42	30	22	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	43	43	36	43	43	32	43	40	29	43	36	26	43	33	23	41	30	21	38	28	19	32	23	16	27	20	21	24	17	19	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	43	43	43	43	43	43	43	43	39	43	42	35	43	38	32	43	35	29	43	32	26	41	27	22	35	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	43	38	31	43	34	28	43	30	25	42	28	23	38	25	21	35	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	43	46	46	38	46	42	33	46	38	30	46	33	24	46	28	20	41	24	16	36	21	14	32	19	19	28	16	17
			Exposed	46	46	38	46	41	32	46	37	28	46	33	25	46	30	22	46	27	19	43	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	~~13~~	18	16	~~11~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	37	44	41	31	39	35	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	44	44	44	44	44	40	44	44	36	44	42	31	42	38	28	38	34	25	35	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	~~13~~
40	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	28	35	35	24	35	31	22
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	28	35	34	24	35	29	21	35	26	18	31	23	16	27	20	21
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	34	28	37	30	24	36	26	22	34	23	19
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	35	29	37	30	25	37	26	21	34	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	36	27	37	31	23	37	28	20
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	36	27	37	31	22	37	27	19	37	23	16	35	21	14	31	18	19
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	29	35	35	25
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	29	35	34	24	33	29	21	29	26	18	26	23	15			
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	26	35	31	22	35	27	19	33	24	17	29	21	23
			Exposed	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	25	35	33	23	35	28	20	33	24	17	28	21	22	25	18	19	22	16	17	19	21	~~15~~
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	31	37	32	27	36	27	23	35	24	20	32	21	17	28	18	23	25	16	20
			Exposed	37	37	37	37	37	33	37	36	30	37	33	27	37	30	25	37	27	22	37	25	21	32	21	17	27	18	23	24	16	20	21	21	17	18	18	~~15~~	16	16	~~13~~
		20-27	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	30	37	33	25	37	29	20	37	25	17	37	22	15	33	20	13
			Exposed	37	37	37	37	37	37	37	37	35	37	37	31	37	36	27	37	33	24	37	30	22	37	25	17	37	22	15	32	19	13	28	16	17	25	22	15	22	19	~~13~~
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	26	35	31	22	31	28	19	28	25	17
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	28	35	32	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	37	36	25	37	30	22	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	37	37	36	37	37	32	37	37	29	37	36	26	37	33	23	37	30	21	37	28	19	32	23	16	27	20	21	24	17	19	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	39	39	39	39	39	39	39	39	39	39	39	35	39	38	32	39	35	29	39	32	26	39	27	22	35	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	39	38	31	39	34	28	39	30	25	39	28	23	38	25	21	35	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	33	39	38	30	39	33	24	39	28	20	39	24	16	36	21	14	32	19	19	28	16	17
			Exposed	39	39	38	39	39	32	39	37	28	39	33	25	39	30	22	39	27	19	39	25	17	36	21	15	31	18	19	27	16	16	24	21	14	21	18	~~13~~	18	16	~~11~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	35	25	34	30	21	29	26	18	26	23	16	23	21	14
			Exposed	37	37	37	37	37	37	37	37	36	37	37	31	37	37	28	37	34	25	35	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	~~13~~
50	B	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	22
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	21	28	26	18	28	23	16	27	20	21
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	30	24	30	26	22	30	23	19
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	30	25	31	26	21	31	22	18	30	19	16	26	17	21	23	23	19
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	27	32	31	23	32	28	20
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	27	32	31	22	32	27	19	32	23	16	32	21	14	31	18	19
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	25
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	24	30	29	21	29	26	18	26	23	15
	C	0-7	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	22	28	27	19	28	24	17	28	21	23
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	23	28	28	20	28	24	17	28	21	22	25	18	19	22	16	17	19	21	~~15~~
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	27	23	30	24	20	29	21	17	28	18	23	25	16	20
			Exposed	31	31	31	31	31	31	31	31	30	31	31	27	31	30	25	31	27	22	31	25	21	31	21	17	27	18	23	24	16	20	21	21	17	18	18	~~15~~	16	16	~~13~~
		20-27	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	25	32	29	20	32	25	17	32	22	15	32	20	13
			Exposed	32	32	32	32	32	32	32	32	32	32	32	31	32	32	27	32	32	24	32	30	22	32	25	17	32	22	15	32	19	13	28	16	17	25	22	15	22	19	~~13~~
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	28	19	28	25	17
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	23	30	27	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	30	22	31	26	19	31	23	16	28	20	22	25	18	19
			Exposed	31	31	31	31	31	31	31	31	29	31	31	26	31	31	23	31	30	21	31	28	19	31	23	16	27	20	21	24	17	19	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	26	33	27	22	32	23	19	30	20	16	27	17	22	23	23	19	21	21	17
			Exposed	34	34	31	34	34	28	34	30	25	34	28	23	34	25	21	34	23	19	32	21	17	27	18	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	33	24	34	28	20	34	24	16	34	21	14	32	19	19	28	16	17
			Exposed	34	34	34	34	34	32	34	34	28	34	33	25	34	34	30	22	34	27	19	34	25	17	34	21	15	31	18	19	27	16	16	24	21	14	21	18	~~13~~	18	16	~~11~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	25	33	30	21	29	26	18	26	23	16	23	21	14
			Exposed	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	33	25	33	32	22	30	27	18	26	23	15	22	20	13	19	17	17	17	23	15	23	21	~~13~~

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UNIRAC

ASCE 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	23	16	24	20	21
		7-20	Interior	26	26	26	26	26	26	26	26	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	22	26	23	19
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	21	26	22	18	26	19	16	26	17	21	23	23	19
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	27	20
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22	27	27	19	27	23	16	27	21	14	27	18	19
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	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
			Exposed	26	26	26	26	26	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	18	26	23	15
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17	24	21	23
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	21	22	24	18	19	22	16	17	19	21	15
		7-20	Interior	26	26	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	26	24	20	25	21	17	24	18	23	24	16	20
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	25	21	26	21	17	26	18	23	24	16	20	21	21	17	18	18	15	16	16	13
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	20	27	25	17	27	22	15	27	20	13	27	20	13
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	24	27	27	22	27	25	17	27	22	15	27	19	13	27	16	17	25	22	15	22	19	13
		27-45	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	25	17
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	19	26	24	16	23	21	14	20	18	18	18	16	16
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	22	26	26	19	26	23	16	26	20	22	25	18	19
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	23	26	26	21	26	26	19	26	23	16	26	20	21	24	17	19	21	23	16	18	20	14	16	18	13
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	27	22	28	23	19	27	20	16	26	17	22	23	23	19	21	21	17
			Exposed	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	21	17	27	18	22	23	23	19	20	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	24	30	28	20	30	24	16	30	21	14	30	19	19	28	16	17
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		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	21	29	26	18	26	23	16	23	21	14
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70	B	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	16	21	20	21
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	19	16	22	17	21	22	23	19
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	23	16	24	21	14	24	18	19
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	15
	C	0-7	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	23
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	22	21	18	19	21	16	17	19	21	15
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	21	17	22	18	23	21	16	20
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		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	24	24	24	20	24	24	17	24	22	15	24	20	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	17	24	22	15	24	19	13	24	16	17	24	22	15	22	19	13
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	21	14	20	18	18	18	16	16
	D	0-7	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	23	23	16	23	20	22	23	18	19
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	19	23	23	16	23	20	21	23	17	19	21	23	16	18	20	14	16	18	13
		7-20	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	23	19	24	20	16	23	17	22	22	23	19	21	21	17
			Exposed	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	23	19	25	21	17	25	18	22	23	23	19	20	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	24	26	26	20	26	24	16	26	21	14	26	19	19	26	16	17
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	26	19	26	25	17	26	21	15	26	18	19	26	16	16	24	21	14	21	18	13	18	16	11
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21	25	25	18	25	23	16	23	21	14
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	18	25	23	15	22	20	13	19	17	17	17	23	15	23	21	13
80	B	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	21
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19
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		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	16	21	21	14	21	18	19
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15
	C	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	23
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	22	18	18	19	18	18	19	18	16	17	18	21	15
		7-20	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	23	19	16	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	18	23	20	16	20	20	21	17	18	18	15	16	16	13
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	17	21	21	15	21	20	13
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	17	21	21	15	21	19	13	21	16	17	21	22	15	21	19	13
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	14	20	18	18	18	16	16	18	18	16
	D	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	22	20	18	19
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		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	16	21	17	22	20	23	19	20	21	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	18	22	22	23	19	20	20	16	17	17	14	23	15	13	21	14	11
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	23	16	23	21	14	23	19	19	23	16	17
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	19	23	23	17	23	21	15	23	18	19	23	16	16	23	21	14	21	18	13	18	16	11
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	21	14
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	15	22	20	13	19	17	17	17	23	15	23	21	13

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

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

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

UNIRAC

ASCE 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	23	19			
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	18	19			
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	16	19	16	16	17	16	21	~~15~~
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	16	20
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	16	20	17	21	17	17	18	~~15~~	16	16	~~13~~
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13	19	16	17	19	22	15	19	19	~~13~~
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14	18	18	18	18	16	16
	D	0-7	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	22	18	18	19
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	21	18	17	19	18	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	22	19	23	19	18	21	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	18	22	19	23	19	19	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	16	21	21	14	21	19	19	21	16	17
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	15	21	18	19	21	16	16	21	21	14	21	18	~~13~~	18	16	~~11~~
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	14
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15	20	20	13	19	17	17	17	23	15	23	21	~~13~~
100	B	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	21
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21	16	23	19
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	19
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23
	C	0-7	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22
			Exposed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	22	14	14	19	14	14	17	14	21	~~15~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23	16	16	20
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	23	16	16	20	16	21	17	16	18	~~15~~	16	16	~~13~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13	17	16	17	17	22	15	17	19	~~13~~			
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	24	16
	D	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	16	19
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21	16	16	19	16	23	16	16	20	~~14~~	16	18	~~13~~
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	22	17	23	19	17	21	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	22	17	23	19	17	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~14~~	~~11~~			
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	19	19	19	16	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15	19	18	19	19	16	16	19	21	14	19	18	~~13~~	18	16	~~11~~
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	14
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	17	17	23	15	23	21	~~13~~			

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

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

~~10~~ Highlighted cell with strikethrough indicate 3-rail system span and module clamp allowable capacity exceeds with 3-rails. 4-Rail system required. Contact Unirac Engineering Services for support.

UNIRAC

ASCE 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	138	111	138	138	62	138	106	53	138	68	47	132	58	41	84	52	37
			Exposed	138	138	138	138	138	138	138	138	138	138	138	132	138	138	72	138	137	61	138	131	56	138	69	47	131	57	40	73	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	64	126	71	55	126	57	47	87	50	41	69	44	36	60	39	32
			Exposed	126	126	126	126	126	126	126	126	126	126	126	65	126	126	59	126	65	54	126	60	49	88	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	54	119	60	46	119	53	39	110	47	33
			Exposed	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	57	119	61	46	119	52	38	88	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	86	113	113	58	113	71	50	113	59	43
			Exposed	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	58	113	65	49	63	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	138	138	138	138	138	138	138	138	138	138	138	137	138	138	107	138	138	66	138	135	60	138	86	51	136	61	43	93	53	38	64	46	33	56	41	29	50	36	39
			Exposed	138	138	103	138	138	64	138	133	57	138	94	52	138	69	47	135	61	43	113	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	126	126	126	126	126	126	126	126	126	126	126	126	126	126	63	126	126	58	126	64	53	126	54	45	75	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	126	126	63	126	126	56	126	61	51	126	55	46	88	50	42	74	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	119	65	119	66	51	119	56	42	119	48	35	78	42	29	64	37	26	56	33	23
			Exposed	119	119	119	119	119	119	119	119	60	119	76	52	119	61	46	119	55	41	119	51	36	80	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	65	113	98	53	113	61	44	59	53	38	52	47	33	46	42	28
			Exposed	113	113	113	113	113	113	113	113	113	113	113	71	113	113	58	113	88	52	113	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	138	138	138	138	138	138	138	138	131	138	138	70	138	136	60	138	122	55	138	84	50	134	60	42	83	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	138	136	60	138	107	54	138	73	48	136	61	43	116	56	39	80	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	126	126	126	126	126	126	126	126	65	126	126	59	126	64	53	126	59	48	126	54	44	73	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	126	64	53	126	57	47	92	51	42	76	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	119	119	119	119	119	119	119	119	119	119	119	119	119	119	68	119	119	56	119	65	50	119	55	40	105	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	119	119	65	119	119	54	119	62	47	119	56	42	119	51	37	94	46	33	78	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	64	113	83	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	113	113	113	113	113	88	113	113	60	113	100	53	113	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
10	B	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	62	102	102	53	102	68	47	102	58	41	84	52	37
			Exposed	102	102	102	102	102	102	102	102	102	102	102	102	102	102	72	102	102	61	102	102	56	102	69	47	102	57	40	73	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	64	103	71	55	103	57	47	87	50	41	69	44	36	60	39	32
			Exposed	103	103	103	103	103	103	103	103	103	103	103	65	103	103	59	103	65	54	103	60	49	88	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	54	108	60	46	108	53	39	108	47	33
			Exposed	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	57	108	61	46	108	52	38	88	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	86	102	102	58	102	71	50	102	59	43
			Exposed	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	58	102	65	49	63	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	66	102	102	60	102	86	51	102	61	43	93	53	38	64	46	33	56	41	29	50	36	39
			Exposed	102	102	102	102	102	64	102	102	57	102	94	52	102	69	47	102	61	43	102	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	63	103	103	58	103	64	53	103	54	45	75	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	103	103	63	103	103	56	103	61	51	103	55	46	88	50	42	74	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	65	108	66	51	108	56	42	108	48	35	78	42	29	64	37	26	56	33	23
			Exposed	108	108	108	108	108	108	108	108	60	108	76	52	108	61	46	108	55	41	108	51	36	80	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	65	102	98	53	102	61	44	59	53	38	52	47	33	46	42	28
			Exposed	102	102	102	102	102	102	102	102	102	102	102	71	102	102	58	102	88	52	102	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	102	102	102	102	102	102	102	102	102	102	102	70	102	102	60	102	102	55	102	84	50	102	60	42	83	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	102	102	60	102	102	54	102	73	48	102	61	43	102	56	39	80	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	103	103	103	103	103	103	103	103	65	103	103	59	103	64	53	103	59	48	103	54	44	73	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	103	64	53	103	57	47	92	51	42	76	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	111	111	111	111	111	111	111	111	111	111	111	111	111	111	68	111	111	56	111	65	50	111	55	40	105	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	111	111	65	111	111	54	111	62	47	111	56	42	111	51	37	94	46	33	78	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	64	104	83	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	104	104	104	104	104	88	104	104	60	104	100	53	104	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
20	B	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	62	72	72	53	72	68	47	72	58	41	72	52	37
			Exposed	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	61	72	72	56	72	69	47	72	57	40	72	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	71	55	72	57	47	72	50	41	69	44	36	60	39	32
			Exposed	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	65	54	72	60	49	72	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	54	85	60	46	85	53	39	85	47	33
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	57	85	61	46	85	52	38	85	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	58	81	71	50	81	59	43
			Exposed	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	58	81	65	49	63	57	41	55	49	35	49	44	30	43	39	26			
	C	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	66	72	72	60	72	72	51	72	61	43	72	53	38	64	46	33	56	41	29	50	36	39
			Exposed	72	72	72	72	72	64	72	72	57	72	72	52	72	69	47	72	61	43	72	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	26
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	63	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	72	72	63	72	72	56	72	61	51	72	55	46	72	50	42	72	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	65	85	66	51	85	56	42	85	48	35	78	42	29	64	37	26	56	33	23
			Exposed	85	85	85	85	85	85	85	85	60	85	76	52	85	61	46	85	55	41	85	51	36	80	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	53	81	61	44	59	53	38	52	47	33	46	42	28
			Exposed	81	81	81	81	81	81	81	81	81	81	81	71	81	81	58	81	81	52	81	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	70	72	72	60	72	72	55	72	72	50	72	60	42	72	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	72	72	60	72	72	54	72	72	48	72	61	43	72	56	39	72	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	72	72	72	72	72	72	72	72	65	72	72	59	72	64	53	72	59	48	72	54	44	72	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	72	64	53	72	57	47	72	51	42	72	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	89	89	89	89	89	89	89	89	89	89	89	89	89	89	68	89	89	56	89	65	50	89	55	40	89	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	89	89	65	89	89	54	89	62	47	89	56	42	89	51	37	89	46	33	78	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	64	85	83	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	85	85	85	85	85	85	85	85	60	85	85	53	85	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21

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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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	62	70	70	53	70	68	47	70	58	41	70	52	37
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	61	70	70	56	70	69	47	70	57	40	70	49	35	59	43	31	52	38	27	46	34	36
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	64	72	71	55	72	57	47	72	50	41	69	44	36	60	39	32
			Exposed	72	72	72	72	72	72	72	72	72	72	72	65	72	72	59	72	65	54	72	60	49	72	50	42	67	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	54	70	60	46	70	53	39	70	47	33
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	57	70	61	46	70	52	38	70	45	32	69	39	27	59	35	24	53	31	21
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	67	50	67	59	43
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	65	49	63	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	60	70	70	51	70	61	43	70	53	38	64	46	33	56	41	29	50	36	39
			Exposed	70	70	70	70	70	64	70	70	57	70	70	52	70	69	47	70	61	43	70	55	39	64	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	~~26~~
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	63	72	72	58	72	64	53	72	54	45	72	46	38	61	40	33	54	35	29	47	31	39	42	27	34
			Exposed	72	72	63	72	72	56	72	61	51	72	55	46	72	50	42	72	46	38	64	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	~~25~~	27	27	~~23~~
		20-27	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	65	70	66	51	70	56	42	70	48	35	70	42	29	64	37	26	56	33	23
			Exposed	70	70	70	70	70	70	70	70	60	70	70	52	70	61	46	70	55	41	70	51	36	70	43	30	62	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	47	67	67	65	67	67	53	67	61	44	59	53	38	52	47	33	46	42	28
			Exposed	67	67	67	67	67	67	67	67	67	67	67	67	67	67	58	67	67	52	67	63	47	60	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	72	72	72	72	72	72	72	72	72	72	72	70	72	72	60	72	72	55	72	72	50	72	60	42	72	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	72	72	60	72	72	54	72	72	48	72	61	43	72	56	39	72	51	36	64	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	~~24~~	27	30	~~21~~
		7-20	Interior	72	72	72	72	72	72	72	72	65	72	72	59	72	64	53	72	59	48	72	54	44	72	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	72	64	53	72	57	47	72	51	42	72	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	~~24~~	39	26	~~21~~	35	~~23~~	~~19~~
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	68	74	74	56	74	65	50	74	55	40	74	47	33	73	41	28	61	36	24	53	31	21	47	28	29
			Exposed	74	74	65	74	74	54	74	62	47	74	56	42	74	51	37	74	46	33	74	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	~~19~~
		27-45	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	51	70	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	71	71	71	71	71	71	71	71	60	71	71	53	71	64	47	65	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
40	B	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	47	58	58	41	58	52	37
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	47	58	57	40	58	49	35	58	43	31	52	38	27	46	34	36
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	55	61	57	47	61	50	41	59	44	36	58	39	32
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	61	60	49	61	50	42	61	43	36	57	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	54	60	60	46	60	53	39	60	47	33
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	46	60	52	38	60	45	32	60	39	27	59	35	24	53	31	21
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	43
			Exposed	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	49	57	57	41	55	49	35	49	44	30	43	39	26
	C	0-7	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	51	58	58	43	58	53	38	58	46	33	56	41	29	50	36	39
			Exposed	58	58	58	58	58	58	58	58	57	58	58	52	58	58	47	58	58	43	58	55	39	58	47	33	55	40	28	48	35	37	42	30	33	37	27	29	33	36	~~26~~
		7-20	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	58	61	61	53	61	54	45	60	46	38	58	40	33	54	35	29	47	31	39	42	27	34
			Exposed	61	61	61	61	61	56	61	61	51	61	55	46	61	50	42	61	46	38	61	42	35	54	35	29	46	30	38	40	26	33	35	35	29	31	31	~~25~~	27	27	~~23~~
		20-27	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	51	60	56	42	60	48	35	60	42	29	60	37	26	56	33	23
			Exposed	60	60	60	60	60	60	60	60	60	60	60	52	60	60	46	60	55	41	60	51	36	60	43	30	60	37	25	54	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	47	57	57	57	57	57	53	57	57	44	57	53	38	52	47	33	46	42	28
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	47	57	54	38	51	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	62	55	62	62	50	62	60	42	62	51	36	61	44	32	53	39	28	47	34	37	42	30	33
			Exposed	62	62	60	62	62	54	62	62	48	62	61	43	62	56	39	62	51	36	62	46	33	54	39	28	46	34	36	40	29	31	35	39	27	31	34	~~24~~	27	30	~~21~~
		7-20	Interior	66	66	66	66	66	66	66	66	65	66	66	59	66	64	53	66	59	48	66	54	44	65	45	38	59	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	66	64	53	66	57	47	66	51	42	66	46	38	64	42	35	59	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	~~24~~	39	26	~~21~~	35	~~23~~	~~19~~
		20-27	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	56	64	64	50	64	55	40	64	47	33	64	41	28	61	36	24	53	31	21	47	28	29
			Exposed	64	64	64	64	64	54	64	62	47	64	56	42	64	51	37	64	46	33	64	42	29	61	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	~~19~~
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	51	61	59	43	57	51	36	50	45	31	44	39	27	39	35	23
			Exposed	61	61	61	61	61	61	61	61	60	61	61	53	61	61	47	61	58	42	59	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
50	B	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	41	47	47	37
			Exposed	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	40	47	47	35	47	43	31	47	38	27	46	34	36
		7-20	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	47	51	50	41	51	44	36	49	39	32
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	50	42	51	43	36	51	37	31	50	33	27	44	29	36	39	39	32
		20-27	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	39	52	47	33
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	38	52	45	32	52	39	27	52	35	24	52	31	21
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	41	50	49	35	49	44	30	43	39	26
	C	0-7	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	38	47	46	33	47	41	29	47	36	39
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	39	47	47	33	47	40	28	47	35	37	42	30	33	37	27	29	33	36	~~26~~
		7-20	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	46	38	50	40	33	48	35	29	46	31	39	42	27	34
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	51	50	42	51	46	38	51	42	35	51	35	29	46	30	38	40	26	33	35	35	29	31	31	~~25~~	27	27	~~23~~
		20-27	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	52	52	42	52	48	35	52	42	29	52	37	26	52	33	23
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	41	52	51	36	52	43	30	52	37	25	52	32	22	47	28	29	42	37	25	37	33	23
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	50	38	50	47	33	46	42	28
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	47	50	50	38	50	46	32	44	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	42	52	51	36	52	44	32	52	39	28	47	34	37	42	30	33
			Exposed	52	52	52	52	52	52	52	52	48	52	52	43	52	52	39	52	51	36	52	46	33	52	39	28	46	34	36	40	29	31	35	39	27	31	34	~~24~~	27	30	~~21~~
		7-20	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	53	57	57	48	57	54	44	55	45	38	53	39	32	51	34	28	45	29	37	40	26	33	35	35	29
			Exposed	57	57	53	57	57	47	57	51	42	57	46	38	57	42	35	57	38	32	54	35	29	45	30	37	39	39	32	34	33	28	29	29	~~24~~	39	26	~~21~~	35	~~23~~	~~19~~
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	50	56	55	40	56	47	33	56	41	28	56	36	24	53	31	21	47	28	29
			Exposed	56	56	56	56	56	54	56	56	47	56	56	42	56	51	37	56	46	33	56	42	29	56	36	25	52	31	21	45	27	28	40	35	24	35	31	21	31	28	~~19~~
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	51	53	53	43	53	51	36	50	45	31	44	39	27	39	35	23
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	47	53	53	42	53	53	38	50	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	31	40	38	27	40	34	36
		7-20	Interior	43	43	43	43	43	43	43	43	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	43	43	36	43	39	32
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	36	43	37	31	43	33	27	43	29	36	39	39	32
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	39	46	46	33
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	38	46	45	32	46	39	27	46	35	24	46	31	21
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	41	43	43	35	43	43	30	43	43	30	43	43	30	43	39	26
	C	0-7	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	33	40	40	29	40	36	39
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	33	40	40	28	40	35	37	40	30	33	37	27	29	33	36	26
		7-20	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	40	33	42	35	29	41	31	39	39	27	34
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	42	43	43	38	43	42	35	43	35	29	43	30	38	40	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	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	35	46	42	29	46	37	26	46	33	23			
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	43	30	46	37	25	46	32	22	46	28	29	42	37	25	37	33	23
		27-45	Interior	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	33	43	42	28
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	38	43	43	32	43	40	27	39	35	23	34	31	30	30	27	26
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	36	44	44	32	44	39	28	44	34	37	42	30	33
			Exposed	44	44	44	44	44	44	44	44	44	44	44	43	44	44	39	44	44	36	44	44	33	44	39	28	44	34	36	40	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	44	48	45	38	47	39	32	45	34	28	43	29	37	40	26	33	35	35	29
			Exposed	48	48	48	48	48	47	48	48	42	48	46	38	48	42	35	48	38	32	48	35	29	45	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	40	50	47	33	50	41	28	50	36	24	50	31	21	47	28	29
			Exposed	50	50	50	50	50	50	50	50	47	50	50	42	50	50	37	50	46	33	50	42	29	50	36	25	50	31	21	45	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	43	48	48	36	48	45	31	44	39	27	39	35	23
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	47	42	48	48	42	48	48	38	48	45	31	43	39	26	37	33	22	33	29	28	29	26	25	39	35	21
70	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	27	35	34	36
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	33	27	37	29	36	37	39	32
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40	40	33
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	32	40	39	27	40	35	24	40	31	21
		27-45	Interior	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
			Exposed	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	35	38	38	30	38	38	26
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	29	35	35	39
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	28	35	35	37	35	30	33	35	27	29	33	36	26			
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	33	37	35	29	37	31	39	35	27	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	35	29	37	30	38	37	26	33	35	35	29	31	31	25	27	27	23
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	35	40	40	29	40	37	26	40	33	23
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	30	40	37	25	40	32	22	40	28	29	40	37	25	37	33	23
		27-45	Interior	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	33	38	38	28
			Exposed	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	32	38	38	27	38	35	23	34	31	30	30	27	26
	D	0-7	Interior	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	38	38	32	38	38	28	38	34	37	38	30	33
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	33	38	38	28	38	34	36	38	29	31	35	39	27	31	34	24	27	30	21
		7-20	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	39	32	40	34	28	39	29	37	38	26	33	35	35	29
			Exposed	41	41	41	41	41	41	41	41	41	41	38	41	41	35	41	38	32	41	35	29	41	30	37	39	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	33	44	41	28	44	36	24	44	31	21	44	28	29
			Exposed	44	44	44	44	44	44	44	44	44	44	42	44	44	37	44	44	33	44	42	29	44	36	25	44	31	21	44	27	28	40	35	24	35	31	21	31	28	19
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	36	41	41	31	41	39	27	39	35	23
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	38	41	41	31	41	39	26	37	33	22	33	29	28	29	26	25	39	35	21
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	36
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	29	36	33	39	32
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	27	35	35	24	35	31	21
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	33	26
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	39
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	37	30	30	33	30	27	29	30	36	26			
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	31	39	32	27	34
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	29	33	30	38	33	26	33	33	35	29	31	31	25	27	27	23
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	29	35	35	26	35	33	23
			Exposed	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	25	35	32	22	35	28	29	35	37	25	35	33	23
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	28
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	27	33	33	23	33	31	30	30	27	26
	D	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	28	34	34	37	34	30	33
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	28	34	34	36	34	29	31	34	39	27	31	34	24	27	30	21
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	34	28	35	29	37	34	26	33	33	35	29
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	32	36	35	29	36	30	37	36	39	32	34	33	28	29	29	24	39	26	21	35	23	19
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	33	39	39	28	39	36	24	39	31	21	39	28	29
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	33	39	39	29	39	36	25	39	31	21	39	27	28	39	35	24	35	31	21	31	28	19
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	37	27	37	35	23
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	26	37	33	22	33	29	28	29	26	25	39	35	21

* 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 7-16	II	30 ft	Ss = 3.00	19 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	36
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	36	29	39	32			
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	31	24	31	31	21			
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26
	C	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	39
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	37	27	27	33	27	27	29	27	36	~~26~~						
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	39	29	27	34				
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	38	29	26	33	29	35	29	29	31	25	27	27	~~23~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	31	23
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	25	31	31	22	31	28	29	31	37	25	31	33	23
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23	30	30	30	30	27	26
	D	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	37	30	30	33
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	36	30	29	31	30	39	27	30	34	~~24~~	27	30	~~21~~
		7-20	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	28	32	29	37	31	26	33	30	35	29
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	30	37	33	39	32	33	33	28	29	29	~~24~~	39	26	~~21~~	35	~~23~~	~~19~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	28	35	35	24	35	31	21	35	28	29
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	29	35	35	25	35	31	21	35	27	28	35	35	24	35	31	21	31	28	~~19~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	27	33	33	23
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	26	33	33	22	33	29	28	29	26	25	39	35	21
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	36	27	39	32
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	24	28	28	21
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	40
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	37	24	24	33	24	24	29	24	36	~~26~~						
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	39	27	27	34
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	38	27	26	33	27	35	29	27	31	25	27	27	~~23~~
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	23
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	28	22	28	28	29	28	37	25	28	33	23
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	41	30	41	41	26
	D	0-7	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	37	27	27	33
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	36	27	27	31	27	39	27	27	34	~~24~~	27	30	~~21~~			
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	37	29	26	33	28	35	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	37	29	39	32	29	33	28	29	29	~~24~~	39	26	~~21~~	35	~~23~~	~~19~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	31	24	31	31	21	31	28	29
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	25	31	31	21	31	27	~~28~~	31	35	24	31	31	21	31	28	~~19~~
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	23
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	26	30	30	22	30	29	28	29	26	25	39	35	21			

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	73	73	73	73	73	73	73	73	73	73	73	73	73	73	65	73	73	55	73	73	47	73	61	36	73	48	31	63	39	26	51	33	23	42	29	20	35	26	18
			Exposed	73	73	64	73	73	53	73	73	44	73	64	37	73	54	33	73	47	30	68	41	28	52	33	23	41	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	67	55	67	67	46	67	56	39	67	41	32	56	33	27	46	28	23	39	25	20	33	22	18	30	19	16
			Exposed	67	67	55	67	63	44	67	51	36	67	42	32	62	36	29	55	32	27	49	30	24	39	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	63	57	42	63	43	33	63	34	27	57	30	23	48	26	19	41	23	16
			Exposed	63	63	63	63	63	63	63	63	55	63	59	44	63	50	37	63	42	32	63	36	28	58	30	23	47	26	19	39	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	42	60	48	34	49	39	29	38	33	25	33	29	21
			Exposed	60	60	60	60	60	60	60	60	60	60	60	57	60	60	48	60	60	41	60	52	36	50	39	29	37	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	73	73	73	73	73	60	73	73	50	73	72	42	73	61	36	73	53	32	73	46	30	58	36	25	45	30	21	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	73	61	36	73	51	32	71	43	28	60	37	26	52	33	23	45	30	21	39	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	67	67	63	67	67	50	67	59	41	67	48	35	67	40	31	60	35	29	53	32	26	43	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	67	40	31	58	34	28	50	30	25	44	27	23	39	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	51	63	57	42	63	48	35	63	41	31	63	32	25	52	28	21	43	24	17	36	21	14	32	18	13	28	16	17
			Exposed	63	56	42	63	45	34	63	38	30	63	33	26	58	30	23	51	27	20	45	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	55	60	60	46	60	59	40	57	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	14
			Exposed	60	60	54	60	60	45	60	55	37	60	46	32	49	39	29	41	34	26	35	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	73	73	53	73	73	44	73	63	37	73	54	33	73	46	30	66	40	27	57	35	25	44	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	73	46	30	64	39	27	53	34	24	46	30	21	39	28	19	35	25	18	32	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	67	65	45	67	51	36	67	42	32	61	35	29	54	32	26	48	29	24	42	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	54	32	26	46	28	23	40	25	21	35	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	63	63	63	63	63	55	63	59	44	63	49	36	63	41	32	63	35	28	63	32	25	50	27	20	41	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	63	41	31	63	34	27	59	31	23	52	28	21	46	25	18	40	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	60	60	60	60	60	60	60	60	57	60	60	48	60	60	40	60	51	35	56	44	31	40	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	60	59	40	60	49	34	52	41	30	42	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
10	B	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	47	52	52	36	52	48	31	52	39	26	51	33	23	42	29	20	35	26	18
			Exposed	52	52	52	52	52	52	52	52	44	52	52	37	52	52	33	52	47	30	52	41	28	52	33	23	41	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	39	52	41	32	52	33	27	46	28	23	39	25	20	33	22	18	30	19	16
			Exposed	52	52	52	52	52	44	52	51	36	52	42	32	52	36	29	52	32	27	49	30	24	39	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	42	56	43	33	56	34	27	56	30	23	48	26	19	41	23	16
			Exposed	56	56	56	56	56	56	56	56	55	56	56	44	56	50	37	56	42	32	56	36	28	56	30	23	47	26	19	39	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	42	53	48	34	49	39	29	38	33	25	33	29	21
			Exposed	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	41	53	52	36	50	39	29	37	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	52	52	52	52	52	52	52	52	50	52	52	42	52	52	36	52	52	32	52	46	30	52	36	25	45	30	21	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	52	52	36	52	51	32	52	43	28	52	37	26	52	33	23	45	30	21	39	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	52	52	52	52	52	50	52	52	41	52	48	35	52	40	31	52	35	29	52	32	26	43	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	52	40	31	52	34	28	50	30	25	44	27	23	39	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	51	56	56	42	56	48	35	56	41	31	56	32	25	52	28	21	43	24	17	36	21	14	32	18	13	28	16	17
			Exposed	56	56	42	56	45	34	56	38	30	56	33	26	56	30	23	51	27	20	45	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	46	53	53	40	53	44	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	14
			Exposed	53	53	53	53	53	45	53	53	37	53	46	32	49	39	29	41	34	26	35	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	52	52	52	52	52	44	52	52	37	52	52	33	52	46	30	52	40	27	52	35	25	44	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	52	46	30	52	39	27	52	34	24	46	30	21	39	28	19	35	25	18	32	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	52	52	45	52	51	36	52	42	32	52	35	29	52	32	26	48	29	24	42	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	52	32	26	46	28	23	40	25	21	35	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	58	58	58	58	58	55	58	58	44	58	49	36	58	41	32	58	35	28	58	32	25	50	27	20	41	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	58	41	31	58	34	27	58	31	23	52	28	21	46	25	18	40	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	55	55	55	55	55	55	55	55	55	55	55	48	55	55	40	55	51	35	55	44	31	40	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	55	55	40	55	49	34	52	41	30	42	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
20	B	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	31	36	36	26	36	33	23	36	29	20	35	26	18			
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	28	36	33	23	36	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	33	27	36	28	23	36	25	20	33	22	18	30	19	16
			Exposed	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	32	27	36	30	24	36	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	43	33	44	34	27	44	30	23	44	26	19	41	23	16
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	37	44	42	32	44	36	28	44	30	23	44	26	19	39	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	34	42	39	29	38	33	25	33	29	21
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	36	42	39	29	37	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	30	36	36	25	36	30	21	36	26	19	32	23	16	28	20	22	25	18	19
			Exposed	36	36	36	36	36	32	36	36	28	36	36	26	36	33	23	36	30	21	36	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31	36	35	29	36	32	26	36	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	36	36	31	36	34	28	36	30	25	36	27	23	36	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	35	44	41	31	44	32	25	44	28	21	43	24	17	36	21	14	32	18	13	28	16	17
			Exposed	44	44	42	44	44	34	44	38	30	44	33	26	44	30	23	44	27	20	44	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	32	42	35	26	34	30	22	29	26	19	26	23	16	23	21	14
			Exposed	42	42	42	42	42	42	42	42	37	42	42	32	42	39	29	41	34	26	35	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	35	25	36	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	36	36	30	36	36	27	36	34	24	36	30	21	36	28	19	35	25	18	32	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	36	36	36	36	36	36	36	36	32	36	35	29	36	32	26	36	29	24	36	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	36	32	26	36	28	23	36	25	21	35	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	46	46	46	46	46	46	46	46	44	46	46	36	46	41	32	46	35	28	46	32	25	46	27	20	41	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	46	41	31	46	34	27	46	31	23	46	28	21	46	25	18	40	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	35	44	44	31	40	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	44	44	40	44	44	34	44	41	30	42	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	31	35	35	26	35	33	23	35	29	20	35	26	18
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	35	28	35	33	23	35	28	20	34	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	33	27	36	28	23	36	25	20	33	22	18	30	19	16
			Exposed	36	36	36	36	36	36	36	36	36	36	36	32	36	36	29	36	32	27	36	30	24	36	25	21	33	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	34	27	36	30	23	36	26	19	36	23	16
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	32	36	36	28	36	30	23	36	26	19	36	22	16	33	20	13	29	17	18	26	15	16
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35	35	29	35	33	25	33	29	21
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	29	35	32	24	31	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	30	35	35	25	35	30	21	35	26	19	32	23	16	28	20	22	25	18	19
			Exposed	35	35	35	35	35	32	35	35	28	35	35	26	35	33	23	35	30	21	35	27	19	32	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31	36	35	29	36	32	26	36	27	22	35	23	19	30	20	16	27	17	22	23	15	19	21	21	17
			Exposed	36	36	31	36	34	28	36	30	25	36	27	23	36	25	21	35	23	19	32	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31	36	32	25	36	28	21	36	24	17	36	21	14	32	18	13	28	16	17
			Exposed	36	36	36	36	36	34	36	36	30	36	33	26	36	30	23	36	27	20	36	25	18	36	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	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	26	34	30	22	29	26	19	26	23	16	23	21	14
			Exposed	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	34	26	35	31	23	30	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	35	25	36	30	21	35	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	36	36	30	36	36	27	36	34	24	36	30	21	36	28	19	35	25	18	32	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	36	36	36	36	36	36	36	36	32	36	35	29	36	32	26	36	29	24	36	27	22	34	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	36	32	26	36	28	23	36	25	21	35	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	36	38	38	32	38	35	28	38	32	25	38	27	20	38	23	16	34	20	14	30	18	18	26	15	16	23	21	14
			Exposed	38	38	31	38	34	27	38	31	23	38	28	21	38	25	18	38	23	16	36	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	31	37	34	26	33	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	37	37	37	37	37	34	37	37	30	37	35	26	35	32	23	32	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
40	B	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	23	29	29	20	29	26	18
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	23	29	28	20	29	24	17	29	21	23	26	19	20	23	17	18
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	28	23	31	25	20	30	22	18	29	19	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	30	24	31	25	21	31	21	18	28	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	27	31	30	23	31	26	19	31	23	16
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	28	31	30	23	31	26	19	31	22	16	31	20	13	29	17	18	26	15	16
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	21
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	24	29	28	20	27	24	17	24	22	15	21	19	13
	C	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	25	29	29	21	29	26	19	29	23	16	28	20	22	25	18	19
			Exposed	29	29	29	29	29	29	29	29	28	29	29	26	29	29	23	29	29	21	29	27	19	29	23	16	27	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	27	22	30	23	19	29	20	16	27	17	22	23	15	19	21	21	17
			Exposed	31	31	31	31	31	28	31	30	25	31	27	23	31	25	21	31	23	19	31	21	17	27	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	25	31	28	21	31	24	17	31	21	14	31	18	13	28	16	17
			Exposed	31	31	31	31	31	31	31	31	30	31	31	26	31	30	23	31	27	20	31	25	18	31	21	15	31	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	22	29	26	19	26	23	16	23	21	14
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	29	23	29	27	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	31	25	31	30	21	31	25	18	30	22	16	26	19	21	23	17	18	21	23	16
			Exposed	31	31	30	31	31	27	31	31	24	31	30	21	31	28	19	31	25	18	31	23	16	27	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	33	33	33	33	33	33	33	33	32	33	33	29	33	32	26	33	29	24	33	27	22	32	22	19	29	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	33	32	26	33	28	23	33	25	21	33	23	19	32	21	17	29	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	28	33	32	25	33	27	20	33	23	16	33	20	14	30	18	18	26	15	16	23	21	14
			Exposed	33	33	31	33	33	27	33	31	23	33	28	21	33	25	18	33	23	16	33	21	14	30	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	29	21	28	25	18	25	22	15	22	19	13	19	17	17
			Exposed	31	31	31	31	31	31	31	31	30	31	31	26	31	31	23	31	29	21	29	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
50	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	18
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	20	24	24	17	24	21	23	24	19	20	23	17	18
		7-20	Interior	26	26	26	26	26	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	26	25	20	25	22	18	25	19	16
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	25	21	26	21	18	26	18	15	25	16	20	22	22	18	19	19	~~16~~
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	26	19	27	23	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	23	27	26	19	27	22	16	27	20	13	27	17	18	26	15	16
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	21
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	25	25	25	20	25	24	17	24	22	15	21	19	13
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	23	16	24	20	22	24	18	19
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	23	16	24	20	21	24	17	18	21	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	22	26	23	19	25	20	16	24	17	22	23	15	19	21	21	17
			Exposed	26	26	26	26	26	26	26	26	25	26	26	23	26	25	21	26	23	19	26	21	17	26	17	22	23	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	21	27	24	17	27	21	14	27	21	14	27	18	13	27	16	17
			Exposed	27	27	27	27	27	27	27	27	27	27	27	26	27	27	23	27	27	20	27	25	18	27	21	15	27	18	12	27	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	25	25	19	25	23	16	23	21	14
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	23	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~	15	20	~~13~~
	D	0-7	Interior	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	25	18	26	22	16	26	19	21	23	17	18	21	23	16
			Exposed	26	26	26	26	26	26	26	26	24	26	26	21	26	26	19	26	25	18	26	23	16	26	19	21	23	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	27	22	28	22	19	27	19	16	25	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	28	28	26	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	27	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	28	27	20	28	23	16	28	20	14	28	18	18	26	15	16	23	21	14
			Exposed	28	28	28	28	28	27	28	28	23	28	28	21	28	25	18	28	23	16	28	21	14	28	18	12	26	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	21	27	25	18	25	22	15	22	19	13	19	17	17
			Exposed	27	27	27	27	27	27	27	27	27	27	27	26	27	27	23	27	27	21	27	26	19	25	22	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	23	20	19	20	20	17	18
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	18	22	19	16
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	21	18	22	18	15	22	16	20	22	22	18	19	19	16
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	23	16
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	19	23	22	16	23	20	13	23	17	18	23	15	16
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	15	21	19	13
	C	0-7	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	22	20	18	19
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	21	20	17	18	20	23	16	18	20	~~14~~	16	18	~~13~~
		7-20	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	20	16	21	17	22	20	15	19	20	21	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	17	22	22	23	19	20	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	23	23	17	23	21	14	23	18	13	23	16	17
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	20	23	23	18	23	21	15	23	18	12	23	16	16	23	21	14	21	18	~~12~~	18	16	~~11~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	21	14
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	20	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	18	22	22	16	22	19	21	22	17	18	21	23	16
			Exposed	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	18	22	22	16	22	19	21	22	17	18	20	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	22	19	23	19	16	22	17	21	22	22	18	20	19	16	17	17	~~14~~
			Exposed	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	19	16	24	17	22	22	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	20	25	23	16	25	20	14	25	18	18	25	15	16	23	21	14
			Exposed	25	25	25	25	25	25	25	25	23	25	25	21	25	25	18	25	23	16	25	21	14	25	18	12	25	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	22	15	22	19	13	19	17	17
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	19	24	22	15	21	19	13	18	17	16	16	16	22	14	22	19	~~12~~	19	17	~~11~~
70	B	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	23	17	17	20	17	17	18
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	18	15	19	16	20	19	22	18	19	19	~~16~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	16	20	20	13	20	17	18	20	15	16
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	15	19	19	13
	C	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	22	17	17	19
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	18	17	23	16	17	20	~~14~~	16	18	~~13~~
		7-20	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	17	22	18	15	19	18	21	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	17	22	19	23	19	19	20	16	17	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	14	20	18	13	20	16	17
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	20	20	15	20	18	12	20	16	16	20	21	14	20	18	~~12~~	18	16	~~11~~
		27-45	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	13	19	17	17	17	15	15	15	20	~~13~~
	D	0-7	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	21	19	17	18	19	23	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	21	19	17	18	19	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	19	16	20	17	21	19	22	18	19	19	16	17	17	~~14~~
			Exposed	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	19	16	21	17	22	21	22	18	19	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	16	22	20	14	22	18	18	22	15	16	22	21	14
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	18	22	22	16	22	21	14	22	18	12	22	15	16	22	20	~~14~~	20	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	21	15	21	19	13	19	17	17
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	15	21	19	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~
80	B	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	23	15	15	20	15	15	18
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	20	16	22	18	16	19	~~16~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	17	18	17	15	16
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	13
	C	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	19
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	15	18	15	23	16	15	20	~~14~~	15	18	~~13~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	15	19	16	21	17
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	23	19	16	20	16	16	17	~~14~~	23	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	14	17	17	13	17	16	17
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15	17	17	12	17	16	16	17	21	14	17	18	~~12~~	17	16	~~11~~
		27-45	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	13	17	17	17	17	15	15	15	15	20	~~13~~
	D	0-7	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	18	17	23	16
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	21	17	17	18	17	22	~~15~~	17	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	17	21	18	22	18	17	19	16	16	17	~~14~~
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	17	22	18	22	18	18	19	~~16~~	17	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	16	19	19	14	19	18	18	19	15	16	19	21	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	18	12	19	15	16	19	20	~~14~~	19	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	17
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	15	18	18	13	18	17	16	16	22	14	22	19	~~12~~	19	17	~~11~~

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UNIRAC

ASCE 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																						
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	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	13
			Exposed	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	13	13	18
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	20	15	22	18	15	19	~~16~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	24	24	18	24	23	16		
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20
	C	0-7	Interior	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	19
			Exposed	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	20	16	13	20	~~14~~	13	18	~~13~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	15	19	15	21	17
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	23	19	15	20	16	15	17	~~14~~	22	~~15~~	~~13~~	21	~~13~~	~~11~~
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	17
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	19	24	24	16	24	21	14	24	18	~~12~~	24	16	~~11~~
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17	22	22	15	22	20	~~13~~
	D	0-7	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	15	18	15	23	16
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	15	18	15	22	~~15~~	15	19	~~13~~	23	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	21	16	22	18	16	19	16	15	17	~~14~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	22	16	22	18	16	19	~~16~~	16	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	18	17	15	16	17	21	14
			Exposed	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	17	12	17	15	16	17	20	~~14~~	17	17	~~12~~	17	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	20	25	25	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	19	25	25	16	24	22	14	22	19	~~12~~	19	17	~~11~~			
100	B	0-7	Interior	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	12
			Exposed	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	18
		7-20	Interior	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	13
			Exposed	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	20	18	13	19	~~16~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	21	21	18	21	21	16
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	C	0-7	Interior	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
			Exposed	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	18	16	12	18	~~14~~	12	18	~~13~~			
		7-20	Interior	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	19	13	20	17
			Exposed	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	22	19	13	20	16	13	17	~~14~~	20	~~15~~	~~13~~	20	~~13~~	~~11~~
		20-27	Interior	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17
			Exposed	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	14	21	18	~~12~~	21	16	~~11~~			
		27-45	Interior	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	17	20	20	15	20	20	~~13~~			
	D	0-7	Interior	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	20	16
			Exposed	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	20	~~15~~	13	19	~~13~~	20	17	~~12~~	20	~~15~~	~~11~~
		7-20	Interior	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	15	22	18	14	19	16	14	17	~~14~~
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	22	15	22	18	15	19	~~16~~	15	16	~~14~~	22	~~14~~	~~12~~	19	~~13~~	~~10~~	17	~~11~~	9
		20-27	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	24	24	18	24	23	16	24	21	14
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	24	24	18	24	23	16	24	20	~~14~~	24	17	~~12~~	24	~~15~~	~~10~~	23	~~14~~	9
		27-45	Interior	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	22	22	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	19	22	22	16	22	22	14	22	19	~~12~~	19	17	~~11~~			

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	134	93	134	134	60	134	97	52	134	65	46	131	57	40	78	50	36
			Exposed	134	134	134	134	134	134	134	134	134	134	134	113	134	134	66	134	134	60	134	118	55	134	65	46	119	56	40	69	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	62	123	65	53	123	56	46	83	49	40	66	43	36	58	38	32
			Exposed	123	123	123	123	123	123	123	123	123	123	123	64	123	123	58	123	64	53	123	58	48	85	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	72	116	83	53	116	59	45	116	52	38	92	46	33			
			Exposed	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	64	116	116	56	116	60	45	116	51	37	85	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	75	110	110	56	110	65	48	64	58	42
			Exposed	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	57	110	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	134	134	134	134	134	134	134	134	134	134	134	134	134	134	91	134	134	64	134	134	59	134	80	50	134	60	42	86	52	37	62	45	32	55	40	28	49	35	38
			Exposed	134	134	89	134	134	63	134	131	56	134	87	51	134	65	46	133	59	42	102	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	123	123	123	123	123	123	123	123	123	123	123	123	123	123	62	123	123	57	123	63	52	123	53	44	73	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	123	123	62	123	82	55	123	60	50	123	54	45	84	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	62	116	64	50	116	55	41	116	47	34	75	41	29	62	37	25	55	32	22
			Exposed	116	116	116	116	116	116	116	116	58	116	66	51	116	59	45	116	54	40	116	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	63	110	83	52	110	59	43	58	52	37	51	46	32	45	41	28
			Exposed	110	110	110	110	110	110	110	110	110	110	110	65	110	110	57	110	77	51	110	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	134	134	134	134	134	134	134	134	109	134	134	65	134	134	59	134	109	54	134	78	49	133	59	42	77	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	134	134	59	134	98	52	134	69	47	134	60	42	104	54	39	74	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	123	123	123	123	123	123	123	123	64	123	123	57	123	63	52	123	57	47	123	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	123	63	52	123	56	46	88	50	42	73	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	116	116	116	116	116	116	116	116	116	116	116	116	116	116	63	116	116	55	116	63	49	116	54	40	91	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	116	116	62	116	85	53	116	61	46	116	55	41	116	50	36	89	45	32	75	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	90	110	110	62	110	74	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	110	110	110	110	110	75	110	110	58	110	84	52	110	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
10	B	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	93	100	100	60	100	97	52	100	65	46	100	57	40	78	50	36
			Exposed	100	100	100	100	100	100	100	100	100	100	100	100	100	100	66	100	100	60	100	100	55	100	65	46	100	56	40	69	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	62	101	65	53	101	56	46	83	49	40	66	43	36	58	38	32
			Exposed	101	101	101	101	101	101	101	101	101	101	101	64	101	101	58	101	64	53	101	58	48	85	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	72	105	83	53	105	59	45	105	52	38	92	46	33			
			Exposed	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	64	105	105	56	105	60	45	105	51	37	85	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	75	99	99	56	99	65	48	64	58	42
			Exposed	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	57	99	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	91	100	100	64	100	100	59	100	80	50	100	60	42	86	52	37	62	45	32	55	40	28	49	35	38
			Exposed	100	100	89	100	100	63	100	100	56	100	87	51	100	65	46	100	59	42	100	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	101	101	101	101	101	101	101	101	101	101	101	101	101	101	62	101	101	57	101	63	52	101	53	44	73	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	101	101	62	101	82	55	101	60	50	101	54	45	84	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	105	105	105	105	105	105	105	105	58	105	66	51	105	59	45	105	54	40	105	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
			Exposed	105	105	105	105	105	105	105	105	58	105	66	51	105	59	45	105	54	40	105	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	63	99	83	52	99	59	43	58	52	37	51	46	32	45	41	28
			Exposed	99	99	99	99	99	99	99	99	99	99	99	65	99	99	57	99	77	51	99	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	100	100	100	100	100	100	100	100	100	100	100	65	100	100	59	100	100	54	100	78	49	100	59	42	77	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	100	100	59	100	98	52	100	69	47	100	60	42	100	54	39	74	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	101	101	101	101	101	101	101	101	64	101	101	57	101	63	52	101	57	47	101	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	101	63	52	101	56	46	88	50	42	73	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	108	108	108	108	108	108	108	108	108	108	108	108	108	108	63	108	108	55	108	63	49	108	54	40	91	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	108	108	62	108	85	53	108	61	46	108	55	41	108	50	36	89	45	32	75	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	90	102	102	62	102	74	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	102	102	102	102	102	75	102	102	58	102	84	52	102	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
20	B	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	60	70	70	60	70	70	52	70	65	46	70	57	40	70	50	36
			Exposed	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	70	70	60	70	70	55	70	65	46	70	56	40	69	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	65	53	71	56	46	71	49	40	66	43	36	58	38	32
			Exposed	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	64	53	71	58	48	71	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	72	83	83	53	83	59	45	83	52	38	83	46	33			
			Exposed	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	64	83	83	56	83	60	45	83	51	37	83	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	75	79	79	56	79	65	48	64	58	42
			Exposed	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	57	79	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	64	70	70	59	70	70	50	70	60	42	70	52	37	62	45	32	55	40	28	49	35	38
			Exposed	70	70	70	70	70	63	70	70	56	70	70	51	70	65	46	70	59	42	70	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	71	71	62	71	71	55	71	60	50	71	54	45	71	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	62	83	64	50	83	55	41	83	47	34	75	41	29	62	37	25	55	32	22
			Exposed	83	83	83	83	83	83	83	83	58	83	66	51	83	59	45	83	54	40	83	49	36	76	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	63	79	79	52	79	59	43	58	52	37	51	46	32	45	41	28
			Exposed	79	79	79	79	79	79	79	79	79	79	79	65	79	79	57	79	77	51	79	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	65	70	70	59	70	70	54	70	70	49	70	59	42	70	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	70	70	59	70	70	52	70	69	47	70	60	42	70	54	39	70	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	71	71	71	71	71	71	71	71	64	71	71	57	71	63	52	71	57	47	71	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	71	63	52	71	56	46	71	50	42	71	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	63	87	87	55	87	63	49	87	54	40	87	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	87	87	62	87	85	53	87	61	46	87	55	41	87	50	36	87	45	32	75	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	62	83	74	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	83	83	83	83	83	75	83	83	58	83	83	52	83	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21

* 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 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																												
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																												
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
30	B	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	60	68	68	52	68	65	46	68	57	40	68	50	36
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	60	68	68	55	68	65	46	68	56	40	68	48	34	58	42	30	51	37	40	45	33	35
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	65	53	71	56	46	71	49	40	66	43	36	58	38	32
			Exposed	71	71	71	71	71	71	71	71	71	71	71	64	71	71	58	71	64	53	71	58	48	71	49	41	65	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	53	69	59	45	69	52	38	69	46	33
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	64	69	69	56	69	60	45	69	51	37	69	44	31	66	39	26	58	34	23	51	30	31
		27-45	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	56	66	65	48	64	58	42
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	57	66	64	47	62	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	64	68	68	59	68	68	50	68	60	42	68	52	37	62	45	32	55	40	28	49	35	38
			Exposed	68	68	68	68	68	63	68	68	56	68	68	51	68	65	46	68	59	42	68	54	38	63	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	62	71	71	57	71	63	52	71	53	44	71	45	37	60	39	32	52	34	28	46	30	38	41	27	34
			Exposed	71	71	62	71	71	55	71	60	50	71	54	45	71	49	41	71	45	37	63	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	64	50	69	55	41	69	47	34	69	41	29	62	37	25	55	32	22
			Exposed	69	69	69	69	69	69	69	69	58	69	66	51	69	59	45	69	54	40	69	49	36	69	42	29	61	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	63	66	66	52	66	59	43	58	52	37	51	46	32	45	41	28
			Exposed	66	66	66	66	66	66	66	66	66	66	66	65	66	66	57	66	66	51	66	62	46	58	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	65	70	70	59	70	70	54	70	70	49	70	59	42	70	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	70	70	59	70	70	52	70	69	47	70	60	42	70	54	39	70	50	35	62	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	71	71	71	71	71	71	71	71	64	71	71	57	71	63	52	71	57	47	71	52	43	70	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	71	63	52	71	56	46	71	50	42	71	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	63	72	72	55	72	63	49	72	54	40	72	46	32	70	40	27	59	35	24	52	31	32	46	27	28
			Exposed	72	72	62	72	72	53	72	61	46	72	55	41	72	50	36	72	45	32	72	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	50	64	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	69	69	69	69	69	69	69	69	58	69	69	52	69	62	46	63	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
40	B	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	57	46	57	57	40	57	50	36
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	57	57	46	57	56	40	57	48	34	57	42	30	51	37	40	45	33	35
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	60	56	46	60	49	40	58	43	36	56	38	32
			Exposed	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	60	60	53	60	58	48	60	49	41	60	42	35	56	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	53	58	58	45	58	52	38	58	46	33
			Exposed	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	56	58	58	45	58	51	37	58	44	31	58	39	26	58	34	23	51	30	31
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	48	56	56	42
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	47	56	55	40	54	48	34	48	43	29	42	38	26
	C	0-7	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	50	57	57	42	57	52	37	57	45	32	55	40	28	49	35	38
			Exposed	57	57	57	57	57	57	57	57	56	57	57	51	57	57	46	57	57	42	57	54	38	57	46	32	54	39	28	47	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	52	60	53	44	59	45	37	57	39	32	52	34	28	46	30	38	41	27	34
			Exposed	60	60	60	60	60	55	60	60	50	60	54	45	60	49	41	60	45	37	60	41	34	53	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	50	58	55	41	58	47	34	58	41	29	58	37	25	55	32	22
			Exposed	58	58	58	58	58	58	58	58	58	58	58	51	58	58	45	58	54	40	58	49	36	58	42	29	58	36	25	53	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	52	56	56	52	56	56	43	56	52	37	51	46	32	45	41	28
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	51	56	56	46	56	52	38	50	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	61	61	54	61	61	49	61	59	42	61	50	36	60	44	31	52	38	41	46	34	36	41	30	32
			Exposed	61	61	59	61	61	52	61	61	47	61	60	42	61	54	39	61	50	35	61	45	32	53	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	64	64	64	64	64	64	64	64	64	64	64	57	64	63	52	64	57	47	64	52	43	63	44	37	58	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	64	63	52	64	56	46	64	50	42	64	45	38	63	41	34	57	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	55	62	62	49	62	54	40	62	46	32	62	40	27	59	35	24	52	31	32	46	27	28
			Exposed	62	62	62	62	62	53	62	61	46	62	55	41	62	50	36	62	45	32	62	41	29	60	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	57	42	56	50	35	49	44	30	43	38	26	38	34	23
			Exposed	60	60	60	60	60	60	60	60	58	60	60	52	60	60	46	60	57	41	58	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
50	B	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	36
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	40	46	46	34	46	42	30	46	37	40	45	33	35
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50	49	40	50	43	36	48	38	32
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	49	41	50	42	35	50	37	30	49	32	26	43	28	35	38	38	31
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	51	38	51	46	33
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	51	37	51	44	31	51	39	26	51	34	23	51	30	31
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	48	49	49	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	40	49	48	34	48	43	29	42	38	26			
	C	0-7	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	37	46	45	32	46	40	28	46	35	38
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	38	46	46	32	46	39	28	46	34	36	41	30	32	36	40	28	32	35	25
		7-20	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	44	50	45	37	49	39	32	47	34	28	45	30	38	41	27	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	45	50	49	41	50	45	37	50	41	34	50	35	29	45	30	37	39	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	41	51	47	34	51	41	29	51	37	25	51	32	22
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	45	51	51	40	51	49	36	51	42	29	51	36	25	51	31	21	46	27	28	41	36	25	36	32	22
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	43	49	49	37	49	46	32	45	41	28
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	38	49	45	31	43	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	51	42	51	50	36	51	44	31	51	38	41	46	34	36	41	30	32
			Exposed	51	51	51	51	51	51	51	51	47	51	51	42	51	51	39	51	50	35	51	45	32	51	38	27	45	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	47	55	52	43	54	44	37	52	38	31	50	33	27	44	29	36	39	38	32	34	34	28
			Exposed	55	55	52	55	55	46	55	50	42	55	45	38	55	41	34	55	38	31	52	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	40	54	46	32	54	40	27	54	35	24	52	31	32	46	27	28
			Exposed	54	54	54	54	54	53	54	54	46	54	54	41	54	50	36	54	45	32	54	41	29	54	35	24	51	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	42	52	50	35	49	44	30	43	38	26	38	34	23
			Exposed	52	52	52	52	52	52	52	52	52	52	52	52	52	52	46	52	52	41	52	52	37	49	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21

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

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UNIRAC

ASCE 7-16	II	30 ft	Ss = 3.00	23 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)	Panel Exposure	Basic Wind Speed (mph)																																								
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																								
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
60	B	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	30	39	37	40	39	33	35
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	36	42	38	32
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	35	42	37	30	42	32	26	42	28	35	38	38	31
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	38	45	45	33
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	37	45	44	31	45	39	26	45	34	23	45	30	31
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	40	42	42	42	42	42	40	42	42	34	42	42	29	42	38	26
	C	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	32	39	39	28	39	35	38
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	32	39	39	28	39	34	36	39	30	32	36	40	28	32	35	25
		7-20	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	39	32	41	34	28	40	30	38	39	27	34
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	41	42	42	37	42	41	34	42	35	29	42	30	37	39	39	32	34	34	28	30	30	25	41	27	22			
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	45	45	34	45	41	29	45	37	25	45	32	22			
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	36	45	42	29	45	36	25	45	31	21	45	27	28	41	36	25	36	32	22			
		27-45	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	41	28
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	38	42	42	31	42	39	26	38	34	23	34	30	29	30	40	26
	D	0-7	Interior	43	43	43	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	38	41	43	34	36	41	30	32
			Exposed	43	43	43	43	43	43	43	43	43	43	43	42	43	43	39	43	43	35	43	43	32	43	38	27	43	33	35	39	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	44	37	46	38	31	44	33	27	42	29	36	39	38	32	34	34	28			
			Exposed	47	47	47	47	47	46	47	47	42	47	45	38	47	41	34	47	38	31	47	34	28	44	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	40	48	46	32	48	40	27	48	35	24	48	31	32	46	27	28
			Exposed	48	48	48	48	48	48	48	48	46	48	48	41	48	48	36	48	45	32	48	41	29	48	35	24	48	30	31	44	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	46	46	35	46	44	30	43	38	26	38	34	23
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	37	46	44	31	42	38	25	37	33	33	32	29	28	28	38	24	38	34	21
70	B	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	34	34	40	34	33	35
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	32
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	30	37	32	26	37	28	35	37	38	31			
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39	39	33
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	31	39	39	26	39	34	23	39	30	31			
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	37	29	37	37	26
	C	0-7	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	28	34	34	38
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	28	34	34	36	34	30	32	34	40	28	32	35	25
		7-20	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	34	28	36	30	38	35	27	34
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	34	37	35	29	37	30	37	37	39	32	34	34	28	30	30	25	41	27	22
		20-27	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	34	39	39	29	39	37	25	39	32	22
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	29	39	36	25	39	31	21	39	27	28	39	36	25	36	32	22
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	32	37	37	28
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	31	37	37	26	37	34	23	34	30	29	30	40	26
	D	0-7	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	31	37	37	41	37	34	36	37	30	32
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	27	37	33	35	37	29	31	34	38	27	30	33	24	40	30	21
		7-20	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40	38	31	39	33	27	38	29	36	37	38	32	34	34	28	
			Exposed	40	40	40	40	40	40	40	40	40	40	40	38	40	40	34	40	38	31	40	34	28	40	29	36	38	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	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	32	43	40	27	43	35	24	43	31	32	43	27	28
			Exposed	43	43	43	43	43	43	43	43	43	43	43	43	43	43	36	43	43	32	43	41	29	43	35	24	43	30	31	43	39	27	39	35	24	34	30	21	30	27	19
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	35	41	41	30	41	38	26	38	34	23
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	37	41	41	31	41	38	25	37	33	33	32	29	28	28	38	24	38	34	21
80	B	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	30	30	35
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	26	32	28	35	32	38	31
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	26	34	34	23	34	30	31
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	46	49	49	39
	C	0-7	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	38
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	30	30	36	30	30	32	30	40	28	30	35	25
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	28	32	30	38	31	27	34
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	29	32	30	37	32	39	32	32	34	28	30	30	25	41	27	22
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	29	34	34	25	34	32	22
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	29	34	34	25	34	31	21	34	27	28	34	36	25	34	32	22
		27-45	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	42
			Exposed	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	40	49	49	34	49	46	29	45	40	26
	D	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	41	33	33	36	33	30	32
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	27	33	33	35	33	29	31	33	38	27	30	33	24	40	30	21
		7-20	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	31	36	33	27	35	29	36	33	38	32	32	34	28
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	34	28	36	29	36	36	38	31	33	33	27	43	29	24	38	25	21	34	22	19
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	32	38	38	27	38	35	24	38	31	32	38	27	28
			Exposed	38	38	38	38	38	38	38	38	38	38	38	38	38	38	36	38	38	32	38	38	29	38	35	24	38	30	31	38	39	27	38	35	24	34	30	21	30	27	19
		27-45	Interior	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	30	36	36	26	36	34	23
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	31	36	36	25	36	33	33	32	29	28	28	38	24	38	34	21

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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.

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ASCE 7-16	II	30 ft	Ss = 3.00	23 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)

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				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
90	B	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	40	26	26	35
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	29	28	35	29	38	31
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	35	46	46	31
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39
	C	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	38
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	36	26	26	32	26	40	28	26	35	~~25~~						
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	38	29	27	34						
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	37	29	39	32	29	34	28	29	30	~~25~~	41	27	~~22~~			
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	38	46	46	34			
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	46	46	37	46	46	32	46	41	28	46	36	25	46	32	22
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	40	44	44	34	44	44	29	44	40	26
	D	0-7	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	41	29	29	36	29	29	32
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	35	29	29	31	29	38	~~27~~	29	33	~~24~~	40	30	~~21~~
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32	32	27	32	29	36	31	38	32	30	34	28
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	29	36	32	38	31	32	33	27	43	29	~~24~~	38	~~25~~	~~21~~	34	~~22~~	~~19~~
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	27	34	34	24	34	31	32	34	27	28
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	34	24	34	30	31	34	39	27	34	35	24	34	30	~~21~~	30	27	~~19~~
		27-45	Interior	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	47	48	48	39	48	48	34
			Exposed	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	39	48	48	33	48	43	28	43	38	24	38	34	21
100	B	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	35
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	35	26	38	31
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
			Exposed	42	42	42	42	42	42	42	42	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	42	42	35	42	42	31
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39
	C	0-7	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	36	24	24	32	24	36	28	24	35	~~25~~						
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	38	26	26	34						
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	37	26	39	32	26	34	28	26	30	~~25~~	39	27	~~22~~			
		20-27	Interior	42	42	42	42	42	42	42	42	42	42	42	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	42	42	34
			Exposed	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	37	42	42	32	42	41	28	42	36	25	42	32	22			
		27-45	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	34	40	40	29	40	40	26			
	D	0-7	Interior	26	26	26	26	26	26	26	26	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
			Exposed	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	35	26	26	31	26	38	~~27~~	26	33	~~24~~	40	30	~~21~~			
		7-20	Interior	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	36	28	38	32	28	34	28			
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	28	29	29	36	29	38	31	29	33	27	43	29	~~24~~	38	~~25~~	~~21~~	34	~~22~~	~~19~~
		20-27	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	41	46	46	36	46	46	32	46	41	28
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	36	46	45	31	46	39	27	46	35	24	46	30	~~21~~	46	27	~~19~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	39	44	44	34
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	38	44	44	33	44	43	28	43	38	24	38	34	21

* 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.