Design Criteria for Span Tables:

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

Building Assumptions

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

Wind Design Assumptions

- Wind loads used are based on ASCE 7-22 Sec. 29.4.4
- Exposure Category B, C, or D
- Basic Wind Speed = 90 – 180 mph
- Level terrain. Topographic factor, kzt = 1.0
- γE = 1.0 for 'Interior' spans, γE = 1.5 for 'Exposed' spans (ASCE 7-22, Fig. 29.4-7)

Snow Design Assumptions

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

Seismic Design Assumptions

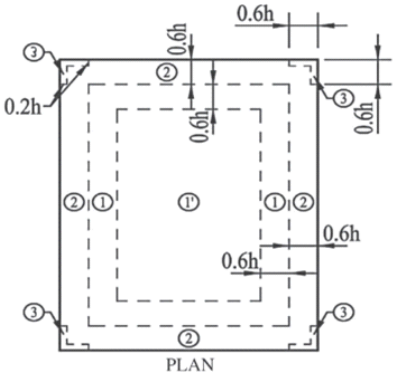
- 0.2-s Spectral Response Acceleration
- S_S = 1.25 and 3 with Sds = 1, 2.4 respectively per criteria shown on individual span tables sheets.
- S_1 = 0.5 & Sd1 = 0.6
- Seismic site class D

Array Assumptions

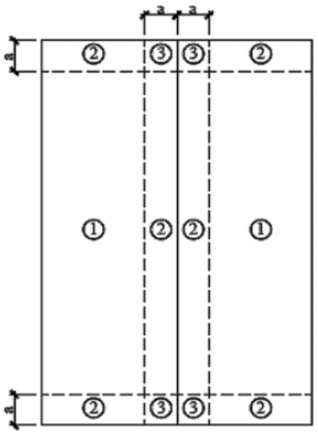
- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1" x 67" (~19 sq.ft, 47.65 lbs) and 41" x 80" (~23 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at least twice the module height above roof surface.
- Modules are parallel to roof surface and maximum height above roof surface is 5" to 10" depending on attachment type.
- Gaps between module rows and columns is 0.25" in to 1" depending on clamp type.
- The most restrictive of all roof zone spans shall be used when any part of the module is attributed to that span.
- 'Exposed' spans as defined in ASCE 7-22 sec. 29.4.4 shall be used when any part of an exposed module or panel as is attributed to that span.

Span Tables

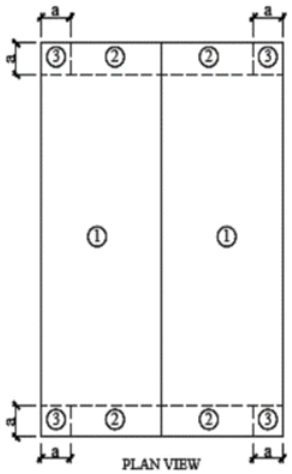
Zone should be considered as per ASCE 7-22, Fig. 30.3-2A to 30.3-2D



Gable Roofs θ ≤ 7°

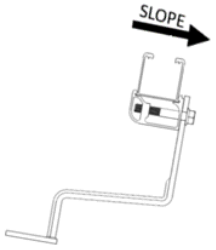


Gable Roofs 7°< θ ≤ 27°



Gable Roofs 27°< θ ≤ 45°

Rails can be installed in these possible orientations.

	*CT2
Y+	Alternate orientation not allowed
Y-	

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	86	86	86	86	86	84	86	86	80	86	86	70	86	84	59	86	81	50	86	75	43	83	57	36	74	45	31	59	38	27	48	33	23	40	29	21	36	26	18
			Exposed	86	84	58	86	80	48	86	70	41	84	59	37	81	51	34	73	44	31	63	40	28	48	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	86	86	86	86	86	81	86	86	72	86	85	58	86	81	48	86	73	42	86	61	38	80	44	32	60	37	27	45	32	24	38	28	21	34	25	18	30	22	16
			Exposed	86	81	48	86	69	41	85	56	36	81	46	33	71	40	30	59	37	27	49	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	87	87	87	87	87	87	87	87	85	87	87	81	87	84	71	87	81	59	87	72	49	87	51	39	83	40	33	75	35	29	59	30	25	48	27	22	41	24	20
			Exposed	87	84	71	87	80	56	87	66	45	87	54	40	86	44	36	83	40	33	80	36	30	60	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	19
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	86	87	87	83	87	87	80	87	84	68	84	74	50	74	56	40	55	44	34	42	38	30	37	33	26	33	30	24
			Exposed	87	87	83	87	86	77	87	82	62	84	77	52	81	65	44	72	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	86	86	64	86	82	53	86	76	44	86	64	39	82	55	36	79	48	32	69	42	30	53	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	82	55	36	76	46	32	64	40	28	55	36	26	47	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	86	83	53	86	77	43	86	62	38	83	51	35	79	43	31	66	39	29	55	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	79	42	31	62	38	28	50	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	87	86	79	87	82	62	87	74	50	87	60	42	87	49	38	85	42	35	82	38	32	66	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	87	49	38	84	41	34	80	37	30	69	33	27	58	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	87	87	84	87	87	81	87	84	69	86	81	57	83	71	48	80	60	42	67	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	83	71	48	77	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	86	80	47	86	67	40	83	57	36	80	48	33	69	42	30	59	38	27	51	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	68	42	30	57	37	26	48	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	86	67	40	84	54	36	80	44	32	67	39	29	55	35	26	46	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	54	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	87	80	54	87	63	44	87	51	39	85	42	35	82	38	32	76	35	29	65	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	81	38	31	73	34	28	60	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	87	85	75	87	81	60	84	73	49	80	61	42	67	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	66	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
10	B	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	70	71	71	59	71	71	50	71	71	43	71	57	36	71	45	31	59	38	27	48	33	23	40	29	21	36	26	18
			Exposed	71	71	58	71	71	48	71	70	41	71	59	37	71	51	34	71	44	31	63	40	28	48	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	58	72	72	48	72	72	42	72	61	38	72	44	32	60	37	27	45	32	24	38	28	21	34	25	18	30	22	16
			Exposed	72	72	48	72	69	41	72	56	36	72	46	33	71	40	30	59	37	27	49	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	71	82	81	59	82	72	49	82	51	39	82	40	33	75	35	29	59	30	25	48	27	22	41	24	20
			Exposed	82	82	71	82	80	56	82	66	45	82	54	40	82	44	36	82	40	33	80	36	30	60	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	19
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	86	84	68	84	74	50	74	56	40	55	44	34	42	38	30	37	33	26	33	30	24
			Exposed	86	86	83	86	86	77	86	82	62	84	77	52	81	65	44	72	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	71	71	64	71	71	53	71	71	44	71	64	39	71	55	36	71	48	32	69	42	30	53	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	71	55	36	71	46	32	64	40	28	55	36	26	47	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	72	72	53	72	72	43	72	62	38	72	51	35	72	43	31	66	39	29	55	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	72	42	31	62	38	28	50	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	82	82	79	82	82	62	82	74	50	82	60	42	82	49	38	82	42	35	82	38	32	66	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	82	49	38	82	41	34	80	37	30	69	33	27	58	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	86	86	84	86	86	81	86	84	69	86	81	57	83	71	48	80	60	42	67	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	83	71	48	77	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	71	71	47	71	67	40	71	57	36	71	48	33	69	42	30	59	38	27	51	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	68	42	30	57	37	26	48	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	72	67	40	72	54	36	72	44	32	67	39	29	55	35	26	46	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	54	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	84	80	54	84	63	44	84	51	39	84	42	35	82	38	32	76	35	29	65	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	81	38	31	73	34	28	60	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	87	85	75	87	81	60	84	73	49	80	61	42	67	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	66	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
20	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	43	53	53	36	53	45	31	53	38	27	48	33	23	40	29	21	36	26	18
			Exposed	53	53	53	53	53	48	53	53	41	53	53	37	53	51	34	53	44	31	53	40	28	48	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	42	53	53	38	53	44	32	53	37	27	45	32	24	38	28	21	34	25	18	30	22	16
			Exposed	53	53	48	53	53	41	53	53	36	53	46	33	53	40	30	53	37	27	49	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	49	65	51	39	65	40	33	65	35	29	59	30	25	48	27	22	41	24	20
			Exposed	65	65	65	65	65	56	65	65	45	65	54	40	65	44	36	65	40	33	65	36	30	60	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	19
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	72	72	50	72	56	40	55	44	34	42	38	30	37	33	26	33	30	24
			Exposed	72	72	72	72	72	72	72	72	62	72	72	52	72	65	44	72	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	53	53	53	53	53	53	53	53	44	53	53	39	53	53	36	53	48	32	53	42	30	53	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	53	53	36	53	46	32	53	40	28	53	36	26	47	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	53	53	53	53	53	43	53	53	38	53	51	35	53	43	31	53	39	29	53	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	53	42	31	53	38	28	50	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	65	65	65	65	65	62	65	65	50	65	60	42	65	49	38	65	42	35	65	38	32	65	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	65	49	38	65	41	34	65	37	30	65	33	27	58	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	72	72	72	72	72	72	72	72	69	72	72	57	72	71	48	72	60	42	67	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	72	71	48	72	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	53	53	47	53	53	40	53	53	36	53	48	33	53	42	30	53	38	27	51	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	53	42	30	53	37	26	48	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	53	53	40	53	53	36	53	44	32	53	39	29	53	35	26	46	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	53	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	68	68	54	68	63	44	68	51	39	68	42	35	68	38	32	68	35	29	65	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	68	38	31	68	34	28	60	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	75	75	75	75	75	60	75	73	49	75	61	42	67	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	66	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 1.25	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	36	42	42	31	42	38	27	42	33	23	40	29	21	36	26	18
			Exposed	42	42	42	42	42	42	42	42	41	42	42	37	42	42	34	42	42	31	42	40	28	42	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	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	37	27	42	32	24	38	28	21	34	25	18	30	22	16
			Exposed	42	42	42	42	42	41	42	42	36	42	42	33	42	40	30	42	37	27	42	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	51	39	53	40	33	53	35	29	53	30	25	48	27	22	41	24	20
			Exposed	53	53	53	53	53	53	53	53	45	53	53	40	53	44	36	53	40	33	53	36	30	53	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	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	50	59	56	40	54	44	34	42	38	30	37	33	26	33	30	24
			Exposed	61	61	61	61	61	61	61	61	61	61	61	52	61	61	44	61	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	39	42	42	36	42	42	32	42	42	30	42	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	42	42	36	42	42	32	42	40	28	42	36	26	42	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	42	42	42	42	42	42	42	42	38	42	42	35	42	42	31	42	39	29	42	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	42	42	31	42	38	28	42	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	53	53	53	53	53	53	53	53	50	53	53	42	53	49	38	53	42	35	53	38	32	53	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	53	49	38	53	41	34	53	37	30	53	33	27	53	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	57	61	61	48	60	60	42	57	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	61	61	48	61	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	42	42	42	42	42	40	42	42	36	42	42	33	42	42	30	42	38	27	42	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	42	42	30	42	37	26	42	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	42	42	40	42	42	36	42	42	32	42	39	29	42	35	26	42	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	42	35	26	42	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	56	56	54	56	56	44	56	51	39	56	42	35	56	38	32	56	35	29	56	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	56	38	31	56	34	28	56	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	64	64	64	64	64	60	64	64	49	63	61	42	60	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	64	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
40	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	36	39	39	31	39	38	27	39	33	23	39	29	21	36	26	18
			Exposed	39	39	39	39	39	39	39	39	39	39	39	37	39	39	34	39	39	31	39	39	28	39	34	24	39	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	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	37	27	39	32	24	38	28	21	34	25	18	30	22	16
			Exposed	39	39	39	39	39	39	39	39	36	39	39	33	39	39	30	39	37	27	39	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		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	39	45	40	33	45	35	29	45	30	25	43	27	22	41	24	20
			Exposed	45	45	45	45	45	45	45	45	45	45	45	40	45	44	36	45	40	33	45	36	30	45	31	25	45	26	22	39	23	19	34	20	16	30	17	14	26	15	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	50	50	50	40	47	44	34	42	38	30	37	33	26	33	30	24
			Exposed	53	53	53	53	53	53	53	53	53	53	53	52	53	53	44	53	53	39	53	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	32	39	39	30	39	36	25	39	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	39	39	36	39	39	32	39	39	28	39	36	26	39	33	23	39	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	39	39	39	39	39	39	39	39	38	39	39	35	39	39	31	39	39	29	39	35	26	39	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	39	39	31	39	38	28	39	34	25	39	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	42	45	45	38	45	42	35	45	38	32	45	32	27	43	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	45	45	38	45	41	34	45	37	30	45	33	27	45	30	25	45	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	51	51	42	49	49	38	45	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	53	53	48	53	53	41	53	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	42	42	42	42	42	40	42	42	36	42	42	33	42	42	30	42	38	27	42	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	42	42	30	42	37	26	42	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	42	42	40	42	42	36	42	42	32	42	39	29	42	35	26	42	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	42	35	26	42	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	48	48	48	48	48	44	48	48	39	48	42	35	48	38	32	48	35	29	48	32	26	46	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	48	38	31	48	34	28	48	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	56	56	56	56	56	56	56	56	49	54	54	42	52	52	38	50	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	56	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
50	B	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	31	33	33	31	33	33	27	33	33	23	33	29	21	33	26	18
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	33	24	33	29	20	33	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	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	32	24	33	28	21	32	25	18	30	22	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	33	25	34	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		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	39	40	40	33	40	35	29	39	30	25	38	27	22	36	24	20
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	33	40	36	30	40	31	25	40	26	22	39	23	19	34	20	16	30	17	14	26	15	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	43	43	40	41	41	34	39	38	30	37	33	26	33	30	24
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	39	46	46	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	30	33	33	25	33	30	21	33	26	19	32	23	16	28	20	14	25	18	19
			Exposed	33	33	33	33	33	32	33	33	28	33	33	26	33	33	23	33	30	21	33	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	29	34	34	26	34	30	22	33	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	34	34	31	34	34	28	34	34	25	34	31	23	34	28	21	34	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	38	32	40	32	27	38	28	23	36	24	20	35	21	17	32	18	15	28	16	20
			Exposed	40	40	38	40	40	34	40	37	30	40	33	27	40	30	25	40	27	23	40	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	42	43	43	38	40	40	32	38	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	46	46	46	46	46	41	46	46	36	46	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	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	15	26	19	20	23	17	18	20	15	16
			Exposed	36	36	30	36	36	26	36	33	24	36	30	21	36	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	37	37	37	37	37	36	37	37	32	37	37	29	37	35	26	37	32	24	36	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	37	35	26	37	31	23	37	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	42	42	42	42	42	42	42	42	39	42	42	35	42	38	32	42	35	29	42	32	26	40	27	22	38	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	42	38	31	42	34	28	42	31	25	42	28	23	42	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	49	49	49	49	49	49	49	49	49	47	47	42	45	45	38	44	44	35	42	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	49	49	38	49	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 1.25	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	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	23	28	28	21	28	26	18
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	20	28	25	18	28	22	15	26	19	20	23	17	18
		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	24	29	28	21	29	25	18	28	22	16
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	28	21	29	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		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	33	35	35	33	35	35	29	34	30	25	33	27	22	32	24	20
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	31	25	35	26	22	35	23	19	34	20	16	30	17	14	26	15	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	39	39	39	37	37	34	35	35	30	34	33	26	32	30	24
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	36	41	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	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	25	28	28	21	28	26	19	28	23	16	28	20	14	25	18	19
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	23	28	28	21	28	27	19	28	23	16	27	20	14	24	17	18	21	15	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	29	22	29	26	19	28	22	16	26	19	14	23	17	19	21	15	17
			Exposed	29	29	29	29	29	28	29	29	25	29	29	23	29	28	21	29	25	19	29	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	32	27	34	28	23	32	24	20	31	21	17	30	18	15	28	16	20
			Exposed	35	35	35	35	35	34	35	35	30	35	33	27	35	30	25	35	27	23	35	25	21	35	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	39	39	38	38	38	36	36	32	34	34	28	32	30	24	29	26	21	26	23	18	23	21	16
			Exposed	41	41	41	41	41	41	41	41	36	41	41	33	41	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	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	15	26	19	20	23	17	18	20	15	16
			Exposed	31	31	30	31	31	26	31	31	24	31	30	21	31	27	19	31	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	29	32	32	26	32	32	24	32	29	22	31	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	32	32	26	32	31	23	32	28	21	32	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	35	29	37	32	26	36	27	22	34	23	19	33	20	16	30	17	14	26	15	19	23	14	17
			Exposed	38	38	31	38	34	28	38	31	25	38	28	23	38	25	21	38	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	42	42	42	41	41	38	39	39	35	38	38	32	36	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	44	44	38	44	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
70	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	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	18	24	22	15	24	19	20	23	17	18
		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	25	25	25	25	25	25	24	25	25	21	25	25	18	25	22	16
			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	18	25	21	15	25	18	21	22	16	18	20	14	16
		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	30	30	30	30	30	30	29	30	30	25	30	27	22	29	24	20
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	25	30	26	22	30	23	19	30	20	16	30	17	14	26	15	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	35	35	35	34	34	34	32	32	30	31	31	26	30	30	24
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	30	35	33	26	32	28	23	28	25	20	24	22	17	22	19	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	21	24	24	19	24	23	16	24	20	14	24	18	19
			Exposed	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	14	24	17	18	21	15	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	25	19	25	22	16	24	19	14	23	17	19	21	15	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~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	27	30	28	23	29	24	20	28	21	17	27	18	15	26	16	20
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	27	23	30	25	21	30	21	17	30	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	36	35	35	35	33	33	32	31	31	28	30	30	24	28	26	21	26	23	18	23	21	16
			Exposed	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	36	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	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	27	22	15	26	19	20	23	17	18	20	15	16
			Exposed	27	27	27	27	27	26	27	27	24	27	27	21	27	27	19	27	25	18	27	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	22	27	25	18	27	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	27	27	26	27	27	23	27	27	21	27	25	19	27	23	17	27	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	26	32	27	22	31	23	19	30	20	16	29	17	14	26	15	19	23	14	17
			Exposed	34	34	31	34	34	28	34	31	25	34	28	23	34	25	21	34	23	19	34	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	40	40	40	40	40	40	39	39	39	38	38	38	37	37	37	36	36	35	35	35	32	33	33	27	31	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	40	40	38	40	40	34	39	38	30	38	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
80	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	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	21	21	21	20	21	21	18	21	21	15	21	19	20	21	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	21	22	22	18	22	22	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	22	18	22	21	15	22	18	21	22	16	18	20	14	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	25	27	27	22	27	24	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	25	27	26	22	27	23	19	27	20	16	27	17	14	26	15	19
		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	34	32	32	32	31	31	31	30	30	30	29	29	26	28	28	24
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	32	32	26	31	28	23	28	25	20	24	22	17	22	19	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	19	21	21	16	21	20	14	21	18	19
			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	14	21	17	18	21	15	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	22	16	22	19	14	21	17	19	21	15	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	20	14	22	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~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	27	27	27	23	27	24	20	26	21	17	25	18	15	24	16	20
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	25	21	27	21	17	27	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	31	31	31	29	29	28	28	28	24	26	26	21	25	23	18	23	21	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	33	33	33	30	33	33	27	32	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	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	21	24	24	18	24	22	15	24	19	20	23	17	18	20	15	16
			Exposed	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	23	16	24	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		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	24	18	24	21	16	24	18	14	22	16	18	19	14	16	17	19	14
			Exposed	24	24	24	24	24	23	24	24	21	24	24	19	24	23	17	24	21	16	24	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	27	22	28	23	19	27	20	16	26	17	14	25	15	19	23	14	17
			Exposed	30	30	30	30	30	28	30	30	25	30	28	23	30	25	21	30	23	19	30	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	37	37	37	37	37	37	36	36	36	35	35	35	34	34	34	33	33	33	32	32	32	31	31	27	29	29	23	27	25	20	24	22	17	22	19	15	19	17	21
			Exposed	37	37	37	37	37	34	36	36	30	35	35	27	34	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 1.25	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	19	19	19	19	19	19	19	19	19	19	19	19	19	19	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
			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	18	19	19	15	19	19	20	19	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	19	15	19	18	21	19	16	18	19	14	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	22	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	23	19	24	20	16	24	17	14	24	15	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	29	29	29	28	28	28	27	27	26	26	26	24
			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	29	28	23	28	25	20	24	22	17	22	19	15
	C	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	19	19	19	16	19	19	14	19	18	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	14	19	17	18	19	15	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	19	14	19	17	19	19	15	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	14	19	17	19	19	14	16	17	19	14	15	17	~~12~~	21	15	~~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	23	24	24	20	24	21	17	23	18	15	22	16	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	21	17	24	18	15	24	16	20	23	14	17	21	18	15	18	16	~~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	28	28	28	27	27	27	26	26	24	25	25	21	23	23	18	22	21	16
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	28	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	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	18	21	21	15	21	19	20	21	17	18	20	15	16
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	18	21	21	16	21	19	14	21	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		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	18	21	21	16	21	18	14	21	16	18	19	14	16	17	19	14
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		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	22	26	23	19	25	20	16	24	17	14	23	15	19	23	14	17
			Exposed	26	26	26	26	26	26	26	26	25	26	26	23	26	25	21	26	23	19	26	21	17	26	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	30	29	29	27	27	27	23	26	25	20	24	22	17	22	19	15	19	17	21
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	32	31	25	31	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
100	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	15	17	17	20	17	17	18
		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	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	15	17	17	21	17	16	18	17	14	16
		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	22	22	22	22	22	22	22	22	22	22	22	22	20
			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	19	22	20	16	22	17	14	22	15	19
		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	26	26	26	25	25	25	24	24	24
			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	26	27	27	23	26	25	20	24	22	17	22	19	15
	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	14	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	14	17	17	18	17	15	16	17	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	14	17	17	19	17	15	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	14	17	17	19	17	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		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	22	22	22	20	22	21	17	21	18	15	21	16	20
			Exposed	22	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	15	22	16	20	22	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	25	24	24	24	23	23	21	22	22	18	21	21	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	26	26	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	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	15	19	19	20	19	17	18	19	15	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	16	18	19	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		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	18	19	19	16	19	18	14	19	16	18	19	14	16	17	19	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	19	14	19	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	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	22	24	23	19	23	20	16	23	17	14	22	15	19	21	14	17
			Exposed	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	18	15	24	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	27	25	25	23	24	24	20	23	22	17	22	19	15	19	17	21
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 1.25	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	102	102	102	102	102	102	102	102	98	102	102	93	102	102	89	102	99	85	102	94	81	102	87	61	94	81	52	88	64	45	83	56	40	73	49	35	60	44	31
			Exposed	102	102	89	102	97	84	102	93	80	102	88	63	98	84	57	94	81	52	90	70	47	83	57	40	69	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	102	102	102	102	102	101	102	102	95	102	102	90	102	100	85	102	95	81	102	91	64	99	83	54	91	62	46	84	54	40	65	47	35	57	42	31	50	37	27
			Exposed	102	100	85	102	94	80	102	89	61	100	84	55	95	80	50	90	62	46	86	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	103	87	65	103	80	56	95	58	48	89	51	42	84	45	37	79	40	33
			Exposed	103	103	95	103	99	89	103	93	84	103	88	80	103	84	60	102	80	55	97	61	50	90	52	43	83	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	103	93	103	95	85	96	88	78	89	82	58	83	64	51	63	56	45	56	50	40
			Exposed	103	103	102	103	103	96	103	101	91	103	96	86	100	91	82	95	87	71	91	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	102	102	91	102	100	86	102	95	82	102	91	69	101	87	60	96	83	55	92	80	50	85	60	42	80	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	101	86	60	95	82	53	90	73	48	86	61	43	83	55	39	79	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	102	102	88	102	97	83	102	91	65	102	86	58	98	82	53	93	65	48	88	60	44	81	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	97	82	53	91	64	47	86	57	42	82	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	103	103	98	103	102	92	103	96	87	103	91	82	103	86	64	103	82	58	100	64	53	92	54	45	85	47	39	80	40	33	60	35	29	53	31	26	47	28	23
			Exposed	103	86	64	103	81	57	98	62	51	93	56	46	89	51	42	85	46	38	81	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	98	90	81	94	86	64	86	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	103	94	84	97	89	80	91	84	61	87	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	102	97	83	102	92	77	102	87	61	97	83	55	92	80	50	88	64	45	85	59	42	75	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	92	80	50	87	63	44	83	56	40	79	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	102	93	80	102	88	60	99	83	54	93	69	49	88	60	44	84	54	40	80	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	88	59	44	83	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	103	98	88	103	92	83	103	87	65	103	82	59	100	64	53	95	59	48	91	54	44	84	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	100	64	53	94	57	47	89	51	42	85	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	64	89	82	58	85	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	93	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	94	81	95	87	61	94	81	52	88	64	45	83	56	40	73	49	35	60	44	31
			Exposed	95	95	89	95	95	84	95	93	80	95	88	63	95	84	57	94	81	52	90	70	47	83	57	40	69	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	96	96	96	96	96	96	96	96	95	96	96	90	96	96	85	96	95	81	96	91	64	96	83	54	91	62	46	84	54	40	65	47	35	57	42	31	50	37	27
			Exposed	96	96	85	96	94	80	96	89	61	96	84	55	95	80	50	90	62	46	86	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	90	100	95	86	100	87	65	100	80	56	95	58	48	89	51	42	84	45	37	79	40	33
			Exposed	100	100	95	100	99	89	100	93	84	100	88	80	100	84	60	100	80	55	97	61	50	90	52	43	83	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	95	85	96	88	78	89	82	58	83	64	51	63	56	45	56	50	40
			Exposed	102	102	102	102	102	96	102	101	91	102	96	86	100	91	82	95	87	71	91	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	95	95	91	95	95	86	95	95	82	95	91	69	95	87	60	95	83	55	92	80	50	85	60	42	80	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	95	86	60	95	82	53	90	73	48	86	61	43	83	55	39	79	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	96	96	88	96	96	83	96	91	65	96	86	58	96	82	53	93	65	48	88	60	44	81	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	96	82	53	91	64	47	86	57	42	82	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	100	100	98	100	100	92	100	96	87	100	91	82	100	86	64	100	82	58	100	64	53	92	54	45	85	47	39	80	40	33	60	35	29	53	31	26	47	28	23
			Exposed	100	86	64	100	81	57	98	62	51	93	56	46	89	51	42	85	46	38	81	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	98	90	81	94	86	64	86	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	102	94	84	97	89	80	91	84	61	87	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	95	95	83	95	92	77	95	87	61	95	83	55	92	80	50	88	64	45	85	59	42	75	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	92	80	50	87	63	44	83	56	40	79	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	96	93	80	96	88	60	96	83	54	93	69	49	88	60	44	84	54	40	80	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	88	59	44	83	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	101	98	88	101	92	83	101	87	65	101	82	59	100	64	53	95	59	48	91	54	44	84	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	100	64	53	94	57	47	89	51	42	85	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	64	89	82	58	85	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	93	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	61	86	81	52	86	64	45	83	56	40	73	49	35	60	44	31
			Exposed	86	86	86	86	86	84	86	86	80	86	86	63	86	84	57	86	81	52	86	70	47	83	57	40	69	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	64	86	83	54	86	62	46	84	54	40	65	47	35	57	42	31	50	37	27
			Exposed	86	86	85	86	86	80	86	86	61	86	84	55	86	80	50	86	62	46	86	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	92	86	92	87	65	92	80	56	92	58	48	89	51	42	84	45	37	79	40	33
			Exposed	92	92	92	92	92	89	92	92	84	92	88	80	92	84	60	92	80	55	92	61	50	90	52	43	83	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	95	85	96	88	78	89	82	58	83	64	51	63	56	45	56	50	40
			Exposed	96	96	96	96	96	96	96	96	91	96	96	86	96	91	82	95	87	71	91	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	86	86	86	86	86	86	86	86	82	86	86	69	86	86	60	86	83	55	86	80	50	85	60	42	80	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	86	86	60	86	82	53	86	73	48	86	61	43	83	55	39	79	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	86	86	86	86	86	83	86	86	65	86	86	58	86	82	53	86	65	48	86	60	44	81	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	86	82	53	86	64	47	86	57	42	82	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	92	92	92	92	92	92	92	92	87	92	91	82	92	86	64	92	82	58	92	64	53	92	54	45	85	47	39	80	40	33	60	35	29	53	31	26	47	28	23
			Exposed	92	86	64	92	81	57	92	62	51	92	56	46	89	51	42	85	46	38	81	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	96	96	96	96	96	96	96	96	94	96	96	89	96	94	85	96	90	81	94	86	64	86	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	96	94	84	96	89	80	91	84	61	87	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	86	86	83	86	86	77	86	86	61	86	83	55	86	80	50	86	64	45	85	59	42	75	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	86	80	50	86	63	44	83	56	40	79	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	86	86	80	86	86	60	86	83	54	86	69	49	86	60	44	84	54	40	80	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	86	59	44	83	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	94	94	88	94	92	83	94	87	65	94	82	59	94	64	53	94	59	48	91	54	44	84	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	94	64	53	94	57	47	89	51	42	85	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	97	97	95	97	97	90	97	95	85	97	90	81	93	86	64	89	82	58	85	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	93	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	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 7-22	II	30 ft	Ss = 1.25	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	61	70	70	52	70	64	45	70	56	40	70	49	35	60	44	31
			Exposed	70	70	70	70	70	70	70	70	70	70	70	63	70	70	57	70	70	52	70	70	47	70	57	40	69	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	64	71	71	54	71	62	46	71	54	40	65	47	35	57	42	31	50	37	27
			Exposed	71	71	71	71	71	71	71	71	61	71	71	55	71	71	50	71	62	46	71	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	86	87	87	65	87	80	56	87	58	48	87	51	42	84	45	37	79	40	33
			Exposed	87	87	87	87	87	87	87	87	84	87	87	80	87	84	60	87	80	55	87	61	50	87	52	43	83	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		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	85	90	88	78	89	82	58	83	64	51	63	56	45	56	50	40
			Exposed	90	90	90	90	90	90	90	90	90	90	90	86	90	90	82	90	87	71	90	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	70	70	70	70	70	70	70	70	70	70	70	69	70	70	60	70	70	55	70	70	50	70	60	42	70	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	70	70	60	70	70	53	70	70	48	70	61	43	70	55	39	70	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	71	71	71	71	71	71	71	71	65	71	71	58	71	71	53	71	65	48	71	60	44	71	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	71	71	53	71	64	47	71	57	42	71	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	87	87	87	87	87	87	87	87	87	87	87	82	87	86	64	87	82	58	87	64	53	87	54	45	85	47	39	80	40	33	60	35	29	53	31	26	47	28	23
			Exposed	87	86	64	87	81	57	87	62	51	87	56	46	87	51	42	85	46	38	81	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	89	90	90	85	90	90	81	90	86	64	86	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	90	90	84	90	89	80	90	84	61	87	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	70	70	70	70	70	70	70	70	61	70	70	55	70	70	50	70	64	45	70	59	42	70	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	70	70	50	70	63	44	70	56	40	70	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	71	71	71	71	71	60	71	71	54	71	69	49	71	60	44	71	54	40	71	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	71	59	44	71	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	88	88	88	88	88	83	88	87	65	88	82	59	88	64	53	88	59	48	88	54	44	84	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	88	64	53	88	57	47	88	51	42	85	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	92	92	92	92	92	90	92	92	85	92	90	81	92	86	64	89	82	58	85	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	92	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
40	B	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	61	65	65	52	65	64	45	65	56	40	65	49	35	60	44	31
			Exposed	65	65	65	65	65	65	65	65	65	65	65	63	65	65	57	65	65	52	65	65	47	65	57	40	65	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	54	66	62	46	66	54	40	65	47	35	57	42	31	50	37	27
			Exposed	66	66	66	66	66	66	66	66	61	66	66	55	66	66	50	66	62	46	66	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	65	76	76	56	76	58	48	76	51	42	74	45	37	70	40	33
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	60	76	76	55	76	61	50	76	52	43	76	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	78	82	82	58	76	64	51	63	56	45	56	50	40
			Exposed	86	86	86	86	86	86	86	86	86	86	86	86	86	86	82	86	86	71	86	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	60	65	65	55	65	65	50	65	60	42	65	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	65	65	60	65	65	53	65	65	48	65	61	43	65	55	39	65	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	66	66	66	66	66	66	66	66	65	66	66	58	66	66	53	66	65	48	66	60	44	66	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	66	66	53	66	64	47	66	57	42	66	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	64	76	76	58	76	64	53	76	54	45	75	47	39	70	40	33	60	35	29	53	31	26	47	28	23
			Exposed	76	76	64	76	76	57	76	62	51	76	56	46	76	51	42	76	46	38	76	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	85	85	64	79	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	86	86	84	86	86	80	86	84	61	86	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	70	70	70	70	70	70	70	70	61	70	70	55	70	70	50	70	64	45	70	59	42	70	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	70	70	50	70	63	44	70	56	40	70	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	71	71	71	71	71	60	71	71	54	71	69	49	71	60	44	71	54	40	71	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	71	59	44	71	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	81	81	81	81	81	81	81	81	65	81	81	59	81	64	53	81	59	48	81	54	44	80	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	81	64	53	81	57	47	81	51	42	81	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	88	88	88	88	88	88	88	88	85	88	88	81	87	86	64	86	82	58	84	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	88	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
50	B	0-7	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	47	56	56	45	56	56	40	56	49	35	56	44	31
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	52	56	56	47	56	56	40	56	48	34	56	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	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	46	57	54	40	56	47	35	54	42	31	50	37	27
			Exposed	57	57	57	57	57	57	57	57	57	57	57	55	57	57	50	57	57	46	57	56	42	57	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		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	65	66	66	56	66	58	48	65	51	42	63	45	37	61	40	33
			Exposed	66	66	66	66	66	66	66	66	66	66	66	66	66	66	60	66	66	55	66	61	50	66	52	43	66	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	75	75	75	70	70	58	65	64	51	62	56	45	56	50	40
			Exposed	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	71	77	77	60	77	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	50	56	56	42	56	51	36	56	44	31	53	39	27	47	34	24	41	30	32
			Exposed	56	56	56	56	56	53	56	56	48	56	56	43	56	55	39	56	50	36	56	46	33	54	39	28	46	33	24	40	29	31	35	25	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	57	44	57	50	37	55	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	57	57	53	57	57	47	57	57	42	57	52	38	57	47	35	57	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	66	66	66	66	66	66	66	66	66	66	66	66	66	66	64	66	66	58	66	64	53	66	54	45	63	47	39	61	40	33	58	35	29	53	31	26	47	28	23
			Exposed	66	66	64	66	66	57	66	62	51	66	56	46	66	51	42	66	46	38	66	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	76	76	76	73	73	64	68	68	54	63	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	77	77	77	77	77	77	77	77	61	77	77	55	77	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	61	61	61	61	61	61	61	61	61	61	61	55	61	61	50	61	61	45	61	59	42	61	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	61	61	50	61	61	44	61	56	40	61	51	36	61	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	61	61	61	61	61	60	61	61	54	61	61	49	61	60	44	61	54	40	61	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	61	59	44	61	53	39	61	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	71	71	71	71	71	71	71	71	65	71	71	59	71	64	53	71	59	48	71	54	44	68	45	38	64	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	71	64	53	71	57	47	71	51	42	71	46	38	71	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	82	82	82	82	82	82	82	82	82	82	82	81	79	79	64	76	76	58	72	72	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	82	82	64	82	81	57	82	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	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 7-22	II	30 ft	Ss = 1.25	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	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	40	47	47	35	47	44	31
			Exposed	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	34	47	42	30	47	37	26	44	32	23	39	29	31
		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	48	48	48	46	48	48	40	48	47	35	48	42	31	47	37	27
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	48	35	48	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	58	48	58	51	42	56	45	37	54	40	33	54	40	33
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	55	59	59	50	59	52	43	59	44	37	59	38	32	57	33	28	50	29	24	45	26	33
		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	69	65	65	65	62	62	58	59	59	51	57	56	45	54	50	40
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	60	69	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	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	42	47	47	36	47	44	31	47	39	27	47	34	24	41	30	32
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	39	47	47	36	47	46	33	47	39	28	46	33	24	40	29	31	35	25	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	48	37	48	43	32	47	37	28	45	33	24	39	29	32	35	26	29
			Exposed	48	48	48	48	48	47	48	48	42	48	48	38	48	47	35	48	43	32	48	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	21	23	25	19
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	53	59	54	45	56	47	39	54	40	33	52	35	29	50	31	26	47	28	23
			Exposed	59	59	59	59	59	57	59	59	51	59	56	46	59	51	42	59	46	38	59	42	35	59	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	66	66	66	64	64	64	61	61	54	57	57	46	54	51	40	49	44	35	44	39	31	39	35	28
			Exposed	69	69	69	69	69	69	69	69	61	69	69	55	68	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	45	52	52	42	52	50	35	52	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	52	52	50	52	52	44	52	52	40	52	51	36	52	46	33	52	42	30	52	38	27	45	33	23	38	28	30	33	24	26	29	32	23	25	28	20	34	25	18
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	49	53	53	44	53	53	40	53	50	37	52	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	53	53	44	53	53	39	53	48	35	53	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	59	63	63	53	63	59	48	63	54	44	60	45	38	57	39	32	55	34	28	50	29	24	44	26	32	39	23	29
			Exposed	63	63	53	63	57	47	63	51	42	63	46	38	63	42	35	63	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	74	74	74	74	74	74	74	74	74	72	72	72	69	69	64	66	66	58	64	64	53	60	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	74	74	64	74	74	57	74	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
70	B	0-7	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	40	41	41	35	41	41	31
			Exposed	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	41	30	41	37	26	41	32	23	39	29	31
		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	41	41	41	41	41	41	40	41	41	35	41	41	31	41	37	27
			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	41	30	41	35	26	41	31	23	37	27	31	33	24	27
		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	48	51	51	42	50	45	37	49	40	33
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	43	51	44	37	51	38	32	51	33	28	50	29	24	45	26	33
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	59	59	59	57	57	57	54	54	51	52	52	45	50	50	40
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	62	62	51	59	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	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	36	41	41	31	41	39	27	41	34	24	41	30	32
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	36	41	41	33	41	39	28	41	33	24	40	29	31	35	25	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	37	41	41	32	41	37	28	41	33	24	39	29	32	35	26	29
			Exposed	41	41	41	41	41	41	41	41	41	41	41	38	41	41	35	41	41	32	41	39	29	41	33	24	39	28	32	33	24	27	29	32	24	26	29	21	23	25	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	45	51	47	39	49	40	33	47	35	29	46	31	26	44	28	23
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	51	51	42	51	46	38	51	42	35	51	36	30	51	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	63	61	61	61	60	60	60	58	58	58	56	56	54	53	53	46	50	50	40	47	44	35	44	39	31	39	35	28
			Exposed	63	63	63	63	63	63	63	63	61	63	63	55	61	61	50	60	58	46	58	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	35	45	43	30	45	37	26	44	32	23	39	28	30	35	25	27
			Exposed	45	45	45	45	45	44	45	45	40	45	45	36	45	45	33	45	42	30	45	38	27	45	33	23	38	28	30	33	24	26	29	32	23	25	28	20	34	25	18
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	46	37	46	42	31	45	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	46	46	44	46	46	39	46	46	35	46	43	32	46	39	29	46	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	48	56	54	44	54	45	38	52	39	32	50	34	28	48	29	24	44	26	32	39	23	29
			Exposed	56	56	53	56	56	47	56	51	42	56	46	38	56	42	35	56	38	32	56	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	67	67	67	67	67	67	66	66	66	64	64	64	62	62	62	61	61	58	59	59	53	55	55	45	52	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	67	67	64	67	67	57	66	64	51	64	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
80	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	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31
			Exposed	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	36	30	36	36	26	36	32	23	36	29	31
		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	35	37	37	31	37	37	27
			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	30	37	35	26	37	31	23	37	27	31	33	24	27
		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	42	45	45	37	45	40	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	43	45	44	37	45	38	32	45	33	28	45	29	24	45	26	33
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	56	56	54	54	54	52	52	52	50	50	50	48	48	45	46	46	40
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	56	51	54	54	44	52	48	38	47	42	33	41	37	29	37	33	26
	C	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	36	36	36	36	36	36	31	36	36	27	36	34	24	36	30	32
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	28	36	33	24	36	29	31	35	25	27	31	34	24	27	30	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	37	28	37	33	24	36	29	32	35	26	29
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	29	37	33	24	37	28	32	33	24	27	29	32	24	26	29	21	23	25	19
		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	39	45	45	39	45	40	33	43	35	29	42	31	26	40	28	23
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	38	45	42	35	45	36	30	45	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	56	56	56	50	55	55	55	54	54	54	51	51	51	49	49	46	46	46	40	44	44	35	42	39	31	39	35	28
			Exposed	57	57	57	57	57	57	57	57	57	57	57	55	56	56	50	55	55	46	54	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	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	35	40	40	30	40	37	26	40	32	23	39	28	30	35	25	27
			Exposed	40	40	40	40	40	40	40	40	40	40	40	36	40	40	33	40	40	30	40	38	27	40	33	23	38	28	30	33	24	26	29	32	23	25	28	20	34	25	18
		7-20	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	40	36	27	40	31	23	37	27	31	33	24	27	29	32	24
			Exposed	40	40	40	40	40	39	40	40	35	40	40	32	40	39	29	40	36	26	40	32	24	38	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	44	50	45	38	48	39	32	46	34	28	44	29	24	42	26	32	39	23	29
			Exposed	50	50	50	50	50	47	50	50	42	50	46	38	50	42	35	50	38	32	50	35	29	50	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	61	61	61	61	61	61	61	61	61	59	59	59	57	57	57	56	56	56	54	54	53	51	51	45	49	49	39	46	42	34	41	37	29	36	33	26	32	29	23
			Exposed	61	61	61	61	61	57	61	61	51	59	58	46	57	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	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 7-22	II	30 ft	Ss = 1.25	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	32	32	32	32	32	32	32	32	32	32	32	32	32	32	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
			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	32	23	32	29	31
		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	31	33	33	27
			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	30	33	33	26	33	31	23	33	27	31	33	24	27
		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	37	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	37	40	38	32	40	33	28	40	29	24	40	26	33
		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	50	50	50	48	48	48	47	47	47	45	45	45	43	43	40
			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	50	50	44	48	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	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	31	32	32	27	32	32	24	32	30	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	24	32	29	31	32	25	27	31	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	33	33	24	33	29	32	32	26	29
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	33	24	33	28	32	33	24	27	29	32	24	26	29	21	23	25	19
		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	39	40	40	33	40	35	29	39	31	26	37	28	23
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	36	30	40	31	25	40	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	47	47	47	45	45	45	43	43	40	41	41	35	39	39	31	38	35	28
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	46	50	50	42	47	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	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	35	36	36	30	36	36	26	36	32	23	36	28	30	35	25	27
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	33	23	36	28	30	33	24	26	29	32	23	25	28	20	34	25	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	31	36	36	27	36	31	23	35	27	31	33	24	27	29	32	24
			Exposed	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	32	24	36	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	38	44	39	32	42	34	28	41	29	24	39	26	32	38	23	29
			Exposed	45	45	45	45	45	45	45	45	42	45	45	38	45	42	35	45	38	32	45	35	29	45	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	56	56	56	56	56	56	56	56	56	55	55	55	53	53	53	52	52	52	51	51	51	48	48	45	45	45	39	43	42	34	41	37	29	36	33	26	32	29	23
			Exposed	56	56	56	56	56	56	56	56	51	55	55	46	53	53	42	52	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
100	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	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	29	23	29	29	31
		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	27
			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	26	29	29	23	29	27	31	29	24	27
		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	36	36	36	36	36	36	36	36	36	33
			Exposed	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	32	36	33	28	36	29	24	36	26	33
		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	45	45	45	43	43	43	42	42	42	40	40	40
			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	44	45	45	38	43	42	33	41	37	29	37	33	26
	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	29	29	29	29	29	29	29	29	29	27	29	29	24	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	24	29	28	24	29	29	31	29	25	27	29	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	24	29	29	32	29	26	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	24	29	28	32	29	24	27	29	32	24	26	29	21	23	25	19
		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	33	36	35	29	36	31	26	35	28	23
			Exposed	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	31	25	36	27	33	36	23	29	35	31	26	31	27	23
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	42	42	42	41	41	40	39	39	35	37	37	31	35	35	28
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	44	44	35	42	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	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	30	32	32	26	32	32	23	32	28	30	32	25	27
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	32	23	32	28	30	32	24	26	29	32	23	25	28	20	34	25	18
		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	31	33	33	27	33	31	23	33	27	31	32	24	27	29	32	24
			Exposed	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	33	26	33	32	24	33	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		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	38	40	39	32	39	34	28	38	29	24	37	26	32	36	23	29
			Exposed	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	38	32	40	35	29	40	30	25	40	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	48	48	48	47	47	47	45	45	45	43	43	39	41	41	34	39	37	29	36	33	26	32	29	23
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	50	50	42	48	48	38	47	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	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 7-22	II	30 ft	Ss = 1.25	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	74	74	74	74	74	74	74	74	70	74	74	58	74	74	49	74	72	42	74	62	36	74	48	30	62	38	26	49	32	22	40	28	20	34	24	17	30	22	15
			Exposed	74	74	49	74	69	40	74	58	34	74	49	31	71	42	28	61	37	26	53	33	23	40	28	20	33	24	17	29	21	15	25	18	19	22	16	17	19	14	15
		7-20	Interior	74	74	74	74	74	74	74	74	60	74	74	49	74	74	40	74	61	35	74	51	32	70	37	27	50	31	23	38	27	20	32	23	17	28	21	15	25	18	13
			Exposed	74	74	40	74	58	34	74	47	30	74	38	27	59	34	25	49	31	23	41	28	21	32	24	17	28	20	15	24	17	20	21	15	17	18	13	15	16	18	~~13~~
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	60	75	74	49	75	60	41	75	43	32	75	34	28	63	29	24	50	25	21	40	22	18	34	20	16
			Exposed	75	75	59	75	70	47	75	55	38	75	45	33	75	37	30	75	33	27	68	30	25	50	26	21	39	22	18	32	19	16	28	16	14	25	15	18	22	20	16
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	67	76	76	57	76	62	41	62	47	33	46	37	29	35	32	25	31	28	22	28	25	20
			Exposed	76	76	76	76	76	64	76	76	52	76	64	43	75	54	36	60	46	33	50	40	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	C	0-7	Interior	74	74	54	74	74	44	74	64	37	74	54	33	74	46	30	67	40	27	57	35	25	44	30	21	35	25	18	30	22	15	26	19	13	23	17	18	20	15	16
			Exposed	74	46	30	64	39	26	54	34	24	46	30	21	39	27	19	35	25	18	32	23	16	27	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		7-20	Interior	74	74	45	74	65	36	74	52	32	74	43	29	67	36	26	55	32	24	46	30	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	66	35	26	52	32	23	42	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	75	75	67	75	75	52	75	62	42	75	50	35	75	41	32	75	35	29	75	32	26	56	27	22	43	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	75	41	32	75	34	28	70	31	25	58	28	23	49	25	21	42	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	76	76	76	76	76	72	76	76	58	76	71	48	76	60	40	68	51	35	56	43	32	40	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	76	59	40	65	48	34	51	40	30	42	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	74	68	39	74	56	34	74	47	30	68	41	27	57	35	25	49	32	23	43	29	21	34	25	17	29	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	57	35	25	48	31	22	40	28	20	35	25	18	31	23	16	29	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	74	56	33	74	45	30	70	37	27	56	33	24	46	30	22	38	27	20	34	25	18	29	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	45	29	22	37	26	19	32	24	17	29	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	75	67	45	75	53	36	75	43	32	75	35	29	75	32	26	64	29	24	54	27	22	41	22	19	33	19	16	28	17	14	25	15	18	22	19	16	19	17	14
			Exposed	75	32	26	61	28	23	50	25	21	42	23	19	36	21	17	33	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	76	76	62	76	75	50	76	61	41	70	51	35	56	43	32	46	37	29	39	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	56	43	32	44	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
10	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	60	42	60	60	36	60	48	30	60	38	26	49	32	22	40	28	20	34	24	17	30	22	15
			Exposed	60	60	49	60	60	40	60	58	34	60	49	31	60	42	28	60	37	26	53	33	23	40	28	20	33	24	17	29	21	15	25	18	19	22	16	17	19	14	15
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	49	60	60	40	60	60	35	60	51	32	60	37	27	50	31	23	38	27	20	32	23	17	28	21	15	25	18	13
			Exposed	60	60	40	60	58	34	60	47	30	60	38	27	59	34	25	49	31	23	41	28	21	32	24	17	28	20	15	24	17	20	21	15	17	18	13	15	16	18	~~13~~
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	60	69	69	49	69	60	41	69	43	32	69	34	28	63	29	24	50	25	21	40	22	18	34	20	16
			Exposed	69	69	59	69	69	47	69	55	38	69	45	33	69	37	30	69	33	27	68	30	25	50	26	21	39	22	18	32	19	16	28	16	14	25	15	18	22	20	16
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	67	74	74	57	74	62	41	62	47	33	46	37	29	35	32	25	31	28	22	28	25	20
			Exposed	74	74	74	74	74	64	74	74	52	74	64	43	74	54	36	60	46	33	50	40	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	C	0-7	Interior	60	60	54	60	60	44	60	60	37	60	54	33	60	46	30	60	40	27	57	35	25	44	30	21	35	25	18	30	22	15	26	19	13	23	17	18	20	15	16
			Exposed	60	46	30	60	39	26	54	34	24	46	30	21	39	27	19	35	25	18	32	23	16	27	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		7-20	Interior	60	60	45	60	60	36	60	52	32	60	43	29	60	36	26	55	32	24	46	30	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	60	35	26	52	32	23	42	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	69	69	67	69	69	52	69	62	42	69	50	35	69	41	32	69	35	29	69	32	26	56	27	22	43	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	69	41	32	69	34	28	69	31	25	58	28	23	49	25	21	42	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	74	74	74	74	74	72	74	74	58	74	71	48	74	60	40	68	51	35	56	43	32	40	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	74	59	40	65	48	34	51	40	30	42	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	60	60	39	60	56	34	60	47	30	60	41	27	57	35	25	49	32	23	43	29	21	34	25	17	29	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	57	35	25	48	31	22	40	28	20	35	25	18	31	23	16	29	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	60	56	33	60	45	30	60	37	27	56	33	24	46	30	22	38	27	20	34	25	18	29	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	45	29	22	37	26	19	32	24	17	29	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	71	67	45	71	53	36	71	43	32	71	35	29	71	32	26	64	29	24	54	27	22	41	22	19	33	19	16	28	17	14	25	15	18	22	19	16	19	17	14
			Exposed	71	32	26	61	28	23	50	25	21	42	23	19	36	21	17	33	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	75	75	62	75	75	50	75	61	41	70	51	35	56	43	32	46	37	29	39	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	56	43	32	44	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
20	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	36	44	44	30	44	38	26	44	32	22	40	28	20	34	24	17	30	22	15
			Exposed	44	44	44	44	44	40	44	44	34	44	44	31	44	42	28	44	37	26	44	33	23	40	28	20	33	24	17	29	21	15	25	18	19	22	16	17	19	14	15
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	35	45	45	32	45	37	27	45	31	23	38	27	20	32	23	17	28	21	15	25	18	13
			Exposed	45	45	40	45	45	34	45	45	30	45	38	27	45	34	25	45	31	23	41	28	21	32	24	17	28	20	15	24	17	20	21	15	17	18	13	15	16	18	~~13~~
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	41	54	43	32	54	34	28	54	29	24	50	25	21	40	22	18	34	20	16
			Exposed	54	54	54	54	54	47	54	54	38	54	45	33	54	37	30	54	33	27	54	30	25	50	26	21	39	22	18	32	19	16	28	16	14	25	15	18	22	20	16
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	41	60	47	33	46	37	29	35	32	25	31	28	22	28	25	20
			Exposed	60	60	60	60	60	60	60	60	52	60	60	43	60	54	36	60	46	33	50	40	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	C	0-7	Interior	44	44	44	44	44	44	44	44	37	44	44	33	44	44	30	44	40	27	44	35	25	44	30	21	35	25	18	30	22	15	26	19	13	23	17	18	20	15	16
			Exposed	44	44	30	44	39	26	44	34	24	44	30	21	39	27	19	35	25	18	32	23	16	27	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		7-20	Interior	45	45	45	45	45	36	45	45	32	45	43	29	45	36	26	45	32	24	45	30	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	45	35	26	45	32	23	42	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	54	54	54	54	54	52	54	54	42	54	50	35	54	41	32	54	35	29	54	32	26	54	27	22	43	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	54	41	32	54	34	28	54	31	25	54	28	23	49	25	21	42	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	60	60	60	60	60	60	60	60	58	60	60	48	60	60	40	60	51	35	56	43	32	40	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	60	59	40	60	48	34	51	40	30	42	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	44	44	39	44	44	34	44	44	30	44	41	27	44	35	25	44	32	23	43	29	21	34	25	17	29	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	44	35	25	44	31	22	40	28	20	35	25	18	31	23	16	29	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	45	45	33	45	45	30	45	37	27	45	33	24	45	30	22	38	27	20	34	25	18	29	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	45	29	22	37	26	19	32	24	17	29	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	57	57	45	57	53	36	57	43	32	57	35	29	57	32	26	57	29	24	54	27	22	41	22	19	33	19	16	28	17	14	25	15	18	22	19	16	19	17	14
			Exposed	57	32	26	57	28	23	50	25	21	42	23	19	36	21	17	33	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	62	62	62	62	62	50	62	61	41	62	51	35	56	43	32	46	37	29	39	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	56	43	32	44	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~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.

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UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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) | | |

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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	22	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	23	24	24	20	24	24	17	24	21	15	24	18	19	22	16	17	19	14	15
		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	23	24	24	20	24	23	17	24	21	15	23	18	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	17	24	20	15	24	17	20	21	15	17	18	13	15	16	18	13
		20-27	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	24	29	25	21	28	22	18	27	20	16
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	26	21	29	22	18	29	19	16	28	16	14	25	15	18	22	20	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	34	34	34	33	33	33	31	31	29	30	30	25	28	28	22	27	25	20
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	34	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	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	21	24	24	18	24	22	15	24	19	13	23	17	18	20	15	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	23	16	24	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		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	24	18	24	21	16	23	18	14	22	16	18	19	14	16	17	19	14
			Exposed	24	24	24	24	24	23	24	24	21	24	24	19	24	23	17	24	21	16	24	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	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	14	25	15	19	23	14	17
			Exposed	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	21	17	29	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	34	34	34	34	33	33	33	32	32	32	30	30	27	29	29	23	27	25	20	24	22	17	22	19	15	19	17	14
			Exposed	35	35	35	35	35	34	35	35	30	35	35	27	34	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	25	17	26	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	26	26	25	26	26	22	26	26	20	26	25	18	26	23	16	26	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	25	18	26	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	26	26	22	26	26	19	26	24	17	26	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	29	24	31	27	22	30	22	19	29	19	16	27	17	14	25	15	18	22	19	16	19	17	14
			Exposed	31	31	26	31	28	23	31	25	21	31	23	19	31	21	17	31	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	37	37	37	37	37	37	36	36	36	35	35	35	34	34	32	33	33	29	32	32	26	30	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	37	37	32	37	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
70	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	17	20	20	15
			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	15	20	18	19	20	16	17	19	14	15
		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	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	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	20	15	21	17	20	21	15	17	18	13	15	16	18	~~13~~
		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	24	25	25	21	25	22	18	24	20	16
			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	22	18	25	19	16	25	16	14	25	15	18	22	20	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	30	30	30	28	28	28	27	27	25	26	26	22	25	25	20
			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	30	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	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	18	20	20	15	20	19	13	20	17	18	20	15	16
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	18	20	20	16	20	19	14	20	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		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	18	21	21	16	21	18	14	20	16	18	19	14	16	17	19	14
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	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	22	25	23	19	24	20	16	24	17	14	23	15	19	22	14	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	23	19	25	21	17	25	18	15	25	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	29	29	29	28	28	27	26	26	23	25	25	20	24	22	17	22	19	15	19	17	14
			Exposed	31	31	31	31	31	30	31	31	30	31	31	27	31	31	25	30	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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	21	22	22	17	22	21	15	22	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	22	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	23	23	22	23	23	19	23	23	17	23	21	16	23	19	14	23	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	27	22	27	22	19	26	19	16	25	17	14	24	15	18	22	19	16	19	17	14
			Exposed	28	28	26	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	28	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	29	29	29	26	28	28	22	26	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	33	33	32	33	33	28	33	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
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	17	18	18	15
			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	17	18	18	15	18	18	19	18	16	17	18	14	15
		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	18	18	18	18	18	18	17	18	18	15	18	18	13
			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	15	18	17	20	18	15	17	18	13	15	16	18	~~13~~
		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	22	22	22	22	22	22	21	22	22	18	22	20	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	22	18	22	19	16	22	16	14	22	15	18	22	20	16
		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	27	27	27	26	26	26	25	25	25	24	24	22	23	23	20
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	27	27	22	26	24	19	23	21	16	20	18	14	18	16	19
	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	15	18	18	13	18	17	18	18	15	16
			Exposed	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	17	18	18	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		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	16	18	18	14	18	16	18	18	14	16	17	19	14
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	16	18	18	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	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	19	22	22	19	22	20	16	22	17	14	21	15	19	20	14	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	18	15	22	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	27	27	25	25	25	24	24	23	23	23	20	22	22	17	21	19	15	19	17	14
			Exposed	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	27	27	23	27	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	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	15	20	18	20	20	16	17	19	14	15	17	19	~~13~~	17	19	~~13~~
			Exposed	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	15	20	19	13	20	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	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	18	20	20	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	20	20	20	20	20	19	20	20	17	20	20	16	20	19	14	20	18	20	20	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	22	19	24	19	16	23	17	14	22	15	18	21	19	16	19	17	14
			Exposed	25	25	25	25	25	23	25	25	21	25	23	19	25	21	17	25	19	16	25	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	31	31	31	31	31	31	30	30	30	29	29	29	29	29	29	28	28	28	27	27	26	26	26	22	24	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	31	31	31	31	31	28	30	30	25	29	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~

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UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	15
			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	19	16	16	17	16	14	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	15	16	16	13
			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	15	16	16	20	16	15	17	16	13	15	16	18	~~13~~
		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	18	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	18	20	19	16	20	16	14	20	15	18	20	20	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	24	24	24	23	23	23	22	22	22	21	21	20
			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	22	24	24	19	23	21	16	20	18	14	18	16	19
	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	15	16	16	13	16	16	18	16	15	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	18	16	14	15	16	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		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	14	16	16	18	16	14	16	16	19	14
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	18	16	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		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	19	20	20	16	20	17	14	19	15	19	19	14	17
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	18	15	20	15	19	20	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~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	24	24	24	23	23	23	22	22	20	21	21	17	20	19	15	19	17	14
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	24	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	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	17	18	18	15	18	18	20	18	16	17	18	14	15	17	19	~~13~~
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	16	17	18	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		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	15	18	18	20	18	15	17	17	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	20	18	16	18	18	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		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	19	22	19	16	21	17	14	20	15	18	20	19	16	19	17	14
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	19	16	22	17	14	22	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	28	28	28	28	28	28	28	28	28	27	27	27	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	21	21	17	20	18	14	18	16	19	16	14	17
			Exposed	28	28	28	28	28	28	28	28	25	27	27	23	26	26	21	26	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
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	19	14	14	17	14	14	15
		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	13
			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	20	15	15	17	15	13	15	15	18	~~13~~
		20-27	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	16
			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	16	14	18	15	18	18	20	16
		27-45	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	22	22	22	22	22	22	21	21	21	20	20	20
			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	22	22	22	19	22	21	16	20	18	14	18	16	19
	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	13	14	14	18	14	14	16
			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	18	14	14	15	14	19	~~13~~	14	17	~~12~~	13	15	~~10~~
		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	14	15	15	18	15	14	16	15	19	14
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	18	15	14	16	15	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	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	16	18	17	14	18	15	19	17	14	17
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	15	19	18	20	16	18	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22	21	21	21	20	20	20	19	19	17	18	18	15	18	17	14
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	22	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	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	15	16	16	20	16	16	17	16	14	15	16	19	~~13~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	17	16	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		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	15	16	16	20	16	15	17	16	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	20	16	16	18	16	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		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	19	20	19	16	20	17	14	19	15	18	18	19	16	18	17	14
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	15	18	20	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	23	23	23	22	22	22	21	21	19	20	20	17	19	18	14	18	16	19	16	14	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	24	24	19	23	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~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 7-22	II	30 ft	Ss = 1.25	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	101	101	101	101	101	101	101	101	97	101	101	92	101	101	88	101	98	84	101	94	81	101	87	60	93	81	51	87	63	44	82	55	39	68	48	34	59	43	30
			Exposed	101	101	88	101	96	83	101	92	77	101	87	61	97	84	56	93	80	51	89	66	46	83	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	102	102	102	102	102	100	102	102	94	102	102	89	102	99	84	102	94	80	102	90	62	98	82	53	90	61	45	83	53	39	63	46	34	56	41	30	49	36	27
			Exposed	102	99	84	102	93	80	102	88	60	99	83	54	94	75	49	89	60	45	85	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	102	86	64	102	79	55	94	57	47	88	50	41	83	44	36	71	39	32
			Exposed	102	102	94	102	97	88	102	92	83	102	87	65	102	83	59	101	65	54	96	60	49	89	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	96	103	102	92	103	94	85	95	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	103	103	101	103	103	95	103	100	90	103	95	85	99	90	82	94	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	101	101	90	101	99	85	101	94	81	101	90	65	100	86	59	95	82	53	91	78	49	85	58	41	77	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	100	86	58	94	81	52	90	68	47	85	60	42	82	54	38	74	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	102	102	87	102	96	82	102	90	63	102	86	57	97	81	52	92	64	47	87	58	43	80	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	96	81	52	90	62	46	85	56	41	81	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	102	102	97	102	101	91	102	95	86	102	90	81	102	85	63	102	81	57	99	63	52	91	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	102	85	62	102	80	56	97	60	50	92	55	45	88	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	103	103	103	103	103	98	103	103	93	103	97	88	103	93	84	97	89	80	92	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	102	93	84	96	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	101	96	83	101	91	70	101	86	60	96	83	54	91	77	49	88	63	44	84	58	41	70	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	91	76	49	87	61	43	82	55	39	75	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	102	92	70	102	87	59	97	82	53	92	64	47	87	58	43	83	53	39	80	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	87	58	43	82	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	102	97	87	102	91	82	102	86	64	102	81	57	99	63	52	94	57	47	90	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	99	63	52	93	56	46	89	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	103	103	94	103	99	89	103	94	84	98	89	80	92	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	92	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	94	81	95	87	60	93	81	51	87	63	44	82	55	39	68	48	34	59	43	30
			Exposed	95	95	88	95	95	83	95	92	77	95	87	61	95	84	56	93	80	51	89	66	46	83	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	95	95	95	95	95	95	95	95	94	95	95	89	95	95	84	95	94	80	95	90	62	95	82	53	90	61	45	83	53	39	63	46	34	56	41	30	49	36	27
			Exposed	95	95	84	95	93	80	95	88	60	95	83	54	94	75	49	89	60	45	85	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	89	99	94	85	99	86	64	99	79	55	94	57	47	88	50	41	83	44	36	71	39	32
			Exposed	99	99	94	99	97	88	99	92	83	99	87	65	99	83	59	99	65	54	96	60	49	89	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	96	102	102	92	102	94	85	95	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	102	102	101	102	102	95	102	100	90	102	95	85	99	90	82	94	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	95	95	90	95	95	85	95	94	81	95	90	65	95	86	59	95	82	53	91	78	49	85	58	41	77	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	95	86	58	94	81	52	90	68	47	85	60	42	82	54	38	74	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	95	95	87	95	95	82	95	90	63	95	86	57	95	81	52	92	64	47	87	58	43	80	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	95	81	52	90	62	46	85	56	41	81	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	99	99	97	99	99	91	99	95	86	99	90	81	99	85	63	99	81	57	99	63	52	91	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	99	85	62	99	80	56	97	60	50	92	55	45	88	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	102	102	102	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	102	93	84	96	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	95	95	83	95	91	70	95	86	60	95	83	54	91	77	49	88	63	44	84	58	41	70	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	91	76	49	87	61	43	82	55	39	75	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	95	92	70	95	87	59	95	82	53	92	64	47	87	58	43	83	53	39	80	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	87	58	43	82	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	100	97	87	100	91	82	100	86	64	100	81	57	99	63	52	94	57	47	90	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	99	63	52	93	56	46	89	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	102	102	94	102	99	89	102	94	84	98	89	80	92	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	92	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
20	B	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	81	85	85	60	85	81	51	85	63	44	82	55	39	68	48	34	59	43	30
			Exposed	85	85	85	85	85	83	85	85	77	85	85	61	85	84	56	85	80	51	85	66	46	83	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	85	85	62	85	82	53	85	61	45	83	53	39	63	46	34	56	41	30	49	36	27
			Exposed	85	85	84	85	85	80	85	85	60	85	83	54	85	75	49	85	60	45	85	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	92	85	92	86	64	92	79	55	92	57	47	88	50	41	83	44	36	71	39	32
			Exposed	92	92	92	92	92	88	92	92	83	92	87	65	92	83	59	92	65	54	92	60	49	89	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	94	85	95	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	95	95	95	95	95	95	95	95	90	95	95	85	95	90	82	94	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	85	85	85	85	85	85	85	85	81	85	85	65	85	85	59	85	82	53	85	78	49	85	58	41	77	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	85	85	58	85	81	52	85	68	47	85	60	42	82	54	38	74	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	85	85	85	85	85	82	85	85	63	85	85	57	85	81	52	85	64	47	85	58	43	80	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	85	81	52	85	62	46	85	56	41	81	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	92	92	92	92	92	91	92	92	86	92	90	81	92	85	63	92	81	57	92	63	52	91	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	92	85	62	92	80	56	92	60	50	92	55	45	88	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	95	95	95	95	95	95	95	95	93	95	95	88	95	93	84	95	89	80	92	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	95	93	84	95	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	85	85	83	85	85	70	85	85	60	85	83	54	85	77	49	85	63	44	84	58	41	70	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	85	76	49	85	61	43	82	55	39	75	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	85	85	70	85	85	59	85	82	53	85	64	47	85	58	43	83	53	39	80	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	85	58	43	82	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	93	93	87	93	91	82	93	86	64	93	81	57	93	63	52	93	57	47	90	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	93	63	52	93	56	46	89	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	96	96	94	96	96	89	96	94	84	96	89	80	92	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	92	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	60	69	69	51	69	63	44	69	55	39	68	48	34	59	43	30
			Exposed	69	69	69	69	69	69	69	69	69	69	69	61	69	69	56	69	69	51	69	66	46	69	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	53	69	61	45	69	53	39	63	46	34	56	41	30	49	36	27
			Exposed	69	69	69	69	69	69	69	69	60	69	69	54	69	69	49	69	60	45	69	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	64	86	79	55	86	57	47	86	50	41	83	44	36	71	39	32
			Exposed	86	86	86	86	86	86	86	86	83	86	86	65	86	83	59	86	65	54	86	60	49	86	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		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	85	90	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	90	90	90	90	90	90	90	90	90	90	90	85	90	90	82	90	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	65	69	69	59	69	69	53	69	69	49	69	58	41	69	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	69	69	58	69	69	52	69	68	47	69	60	42	69	54	38	69	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	69	69	69	69	69	69	69	69	63	69	69	57	69	69	52	69	64	47	69	58	43	69	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	69	69	52	69	62	46	69	56	41	69	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	81	86	85	63	86	81	57	86	63	52	86	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	86	85	62	86	80	56	86	60	50	86	55	45	86	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	90	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	90	90	84	90	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	69	69	69	69	69	69	69	69	60	69	69	54	69	69	49	69	63	44	69	58	41	69	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	69	69	49	69	61	43	69	55	39	69	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	69	69	69	69	69	59	69	69	53	69	64	47	69	58	43	69	53	39	69	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	69	58	43	69	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	88	88	87	88	88	82	88	86	64	88	81	57	88	63	52	88	57	47	88	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	88	63	52	88	56	46	88	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	91	91	91	91	91	89	91	91	84	91	89	80	91	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	91	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
40	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	51	64	63	44	64	55	39	64	48	34	59	43	30
			Exposed	64	64	64	64	64	64	64	64	64	64	64	61	64	64	56	64	64	51	64	64	46	64	55	39	64	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	53	65	61	45	65	53	39	63	46	34	56	41	30	49	36	27
			Exposed	65	65	65	65	65	65	65	65	60	65	65	54	65	65	49	65	60	45	65	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	64	74	74	55	74	57	47	74	50	41	72	44	36	68	39	32
			Exposed	74	74	74	74	74	74	74	74	74	74	74	65	74	74	59	74	65	54	74	60	49	74	50	42	74	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		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	85	85	85	66	80	80	57	74	62	50	61	55	44	55	49	39
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	65	85	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	64	53	64	64	49	64	58	41	64	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	64	64	58	64	64	52	64	64	47	64	60	42	64	54	38	64	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	65	65	65	65	65	65	65	65	63	65	65	57	65	65	52	65	64	47	65	58	43	65	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	65	65	52	65	62	46	65	56	41	65	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	63	74	74	57	74	63	52	74	53	44	73	46	38	68	40	33	59	35	29	52	30	25	46	27	34
			Exposed	74	74	62	74	74	56	74	60	50	74	55	45	74	49	41	74	45	37	74	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	84	84	62	77	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	85	85	84	85	85	76	85	83	60	85	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	68	68	68	68	68	68	68	68	60	68	68	54	68	68	49	68	63	44	68	58	41	68	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	68	68	49	68	61	43	68	55	39	68	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	69	69	69	69	69	59	69	69	53	69	64	47	69	58	43	69	53	39	69	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	69	58	43	69	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	79	79	79	79	79	79	79	79	64	79	79	57	79	63	52	79	57	47	79	52	43	78	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	79	63	52	79	56	46	79	50	42	79	45	38	79	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	87	87	87	87	87	87	87	87	84	87	87	80	87	85	62	85	81	57	82	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	87	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
50	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	44	55	55	39	55	48	34	55	43	30	55	43	30
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	46	55	55	39	55	47	33	55	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	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	45	56	53	39	55	46	34	53	41	30	49	36	27
			Exposed	56	56	56	56	56	56	56	56	56	56	56	54	56	56	49	56	56	45	56	55	41	56	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	55	65	57	47	64	50	41	61	44	36	59	39	32
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	54	65	60	49	65	50	42	65	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		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	73	73	66	68	68	57	64	62	50	61	55	44	55	49	39
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	65	76	76	59	76	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	49	55	55	41	55	50	35	55	43	31	52	38	27	46	33	36	41	30	32
			Exposed	55	55	55	55	55	52	55	55	47	55	55	42	55	54	38	55	49	35	55	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	52	56	56	47	56	56	43	56	49	36	54	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	56	56	52	56	56	46	56	56	41	56	50	37	56	46	34	56	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	57	65	63	52	65	53	44	62	46	38	59	40	33	57	35	29	52	30	25	46	27	34
			Exposed	65	65	62	65	65	56	65	60	50	65	55	45	65	49	41	65	45	37	65	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	71	71	62	66	66	53	62	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	76	76	76	76	76	76	76	76	60	76	76	54	76	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	54	59	59	49	59	59	44	59	58	41	59	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	59	59	49	59	59	43	59	55	39	59	50	35	59	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	60	60	60	60	60	59	60	60	53	60	60	47	60	58	43	60	53	39	60	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	60	58	43	60	52	38	60	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	69	69	69	69	69	69	69	69	64	69	69	57	69	63	52	69	57	47	69	52	43	66	44	37	62	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	69	63	52	69	56	46	69	50	42	69	45	38	69	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	77	77	62	74	74	57	70	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	80	80	62	80	80	56	80	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	46	46	46	46	46	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	39	46	46	34	46	43	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	33	46	41	29	46	36	25	43	32	34	38	28	30
		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	45	47	47	39	47	46	34	47	41	30	46	36	27
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	35	47	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	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	55	57	57	47	56	50	41	55	44	36	53	39	32
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	57	50	42	57	43	36	57	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	67	67	64	64	64	61	61	57	58	58	50	55	55	44	53	49	39
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	59	67	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	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	41	46	46	35	46	43	31	46	38	27	46	33	36	41	30	32
			Exposed	46	46	46	46	46	46	46	46	46	46	42	46	46	38	46	46	35	46	45	32	46	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	43	47	47	36	47	42	31	46	37	27	44	32	24	38	28	32	34	25	28
			Exposed	47	47	47	47	47	46	47	47	41	47	47	37	47	46	34	47	42	31	47	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	53	44	55	46	38	53	40	33	51	35	29	49	30	25	46	27	34
			Exposed	57	57	57	57	57	56	57	57	50	57	55	45	57	49	41	57	45	37	57	41	34	57	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	68	68	68	68	68	68	68	68	68	68	68	68	67	67	67	65	65	65	63	63	62	59	59	53	56	56	45	53	49	39	48	43	34	43	38	30	38	34	27
			Exposed	68	68	68	68	68	68	68	68	60	68	68	54	67	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	41	51	49	34	51	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	51	51	49	51	51	43	51	51	39	51	50	35	51	45	32	51	41	29	51	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	47	52	52	43	52	52	39	52	49	36	51	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	52	52	43	52	52	38	52	46	34	52	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	57	61	61	52	61	57	47	61	52	43	59	44	37	56	38	31	54	33	27	49	29	24	43	25	32	38	34	28
			Exposed	61	61	52	61	56	46	61	50	42	61	45	38	61	41	34	61	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	72	72	72	72	72	72	72	72	72	70	70	70	67	67	62	65	65	57	63	63	52	59	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	72	72	62	72	72	56	72	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
70	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	39	40	40	34	40	40	30
			Exposed	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	40	40	29	40	36	25	40	32	34	38	28	30
		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	41	41	41	41	41	41	39	41	41	34	41	41	30	41	36	27
			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	40	30	41	35	26	41	30	34	36	27	30	32	24	27
		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	50	50	50	50	50	50	47	50	50	41	49	44	36	48	39	32
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	42	50	43	36	50	37	31	50	33	27	49	29	24	44	26	32
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	58	58	58	56	56	56	53	53	50	51	51	44	49	49	39
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	60	60	50	58	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	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	35	40	40	31	40	38	27	40	33	36	40	30	32
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	40	32	40	38	27	40	33	35	39	28	30	34	25	27	30	33	23	27	29	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	36	41	41	31	41	37	27	40	32	24	38	28	32	34	25	28
			Exposed	41	41	41	41	41	41	41	41	41	41	41	37	41	41	34	41	41	31	41	38	28	41	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		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	46	38	48	40	33	46	35	29	45	30	25	43	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	50	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	59	59	57	57	57	54	54	53	52	52	45	49	49	39	46	43	34	43	38	30	38	34	27
			Exposed	61	61	61	61	61	61	61	61	60	61	61	54	60	60	49	59	56	45	57	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	34	44	42	29	44	36	26	43	31	34	38	28	30	34	25	26
			Exposed	44	44	44	44	44	43	44	44	39	44	44	35	44	44	32	44	41	29	44	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	39	45	45	36	45	41	30	44	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	45	45	43	45	45	38	45	45	34	45	42	31	45	38	28	45	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	47	55	52	43	53	44	37	51	38	31	49	33	27	47	29	24	43	25	32	38	34	28
			Exposed	55	55	52	55	55	46	55	50	42	55	45	38	55	41	34	55	38	31	55	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	66	66	66	66	66	66	65	65	65	63	63	63	61	61	61	59	59	57	57	57	52	54	54	44	51	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	66	66	62	66	66	56	65	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
80	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	34	35	35	30
			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	33	35	35	29	35	35	25	35	32	34	35	28	30
		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	36	36	36	36	36	36	34	36	36	30	36	36	27
			Exposed	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	35	26	36	30	34	36	27	30	32	24	27
		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	44	44	44	44	44	44	41	44	44	36	44	39	32
			Exposed	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	36	44	37	31	44	33	27	44	29	24	44	26	32
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	53	53	53	51	51	51	49	49	49	47	47	44	45	45	39
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	50	53	53	43	51	47	37	46	41	33	40	36	29	36	32	25
	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	31	35	35	27	35	33	36	35	30	32
			Exposed	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	35	35	28	30	34	25	27	30	33	23	27	29	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	36	27	36	32	24	35	28	32	34	25	28
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	36	28	36	32	24	36	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		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	38	44	40	33	42	35	29	41	30	25	40	27	34
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	37	44	41	34	44	35	29	44	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	54	54	54	52	52	52	50	50	50	48	48	45	45	45	39	43	43	34	41	38	30	38	34	27
			Exposed	56	56	56	56	56	56	56	56	56	56	56	54	55	55	49	54	54	45	52	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	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	34	39	39	29	39	36	26	39	31	34	38	28	30	34	25	26
			Exposed	39	39	39	39	39	39	39	39	39	39	39	35	39	39	32	39	39	29	39	38	27	39	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	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	35	26	39	30	34	36	27	30	32	23	26	28	32	23
			Exposed	39	39	39	39	39	38	39	39	34	39	39	31	39	38	28	39	35	26	39	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	43	48	44	37	47	38	31	45	33	27	43	29	24	41	25	32	38	34	28
			Exposed	49	49	49	49	49	46	49	49	42	49	45	38	49	41	34	49	38	31	49	34	28	48	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	60	60	60	60	60	60	59	59	59	58	58	58	56	56	56	55	55	55	53	53	52	50	50	44	47	47	38	45	41	33	40	36	29	36	32	25	32	28	34
			Exposed	60	60	60	60	60	56	59	59	50	58	57	45	56	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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

UNIRAC

ASCE 7-22	II	30 ft	Ss = 1.25	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	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
			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	29	31	31	25	31	31	34	31	28	30
		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	30	32	32	27
			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	30	32	32	26	32	30	34	32	27	30	32	24	27
		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	36	39	39	32
			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	36	39	37	31	39	33	27	39	29	24	39	26	32
		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	49	49	49	47	47	47	46	46	46	44	44	44	42	42	39
			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	49	49	43	47	47	37	46	41	33	40	36	29	36	32	25
	C	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	31	31	31	31	31	31	31	31	31	27	31	31	36	31	30	32
			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	31	35	31	28	30	31	25	27	30	33	23	27	29	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	32	24	32	28	32	31	25	28
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	24	32	28	31	32	24	27	29	32	24	25	28	21	34	25	18
		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	38	39	39	33	39	35	29	38	30	25	37	27	34
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	34	39	35	29	39	30	25	39	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	48	48	48	46	46	46	44	44	44	42	42	39	40	40	34	39	38	30	37	34	27
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	45	48	48	41	46	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	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	34	35	35	29	35	35	26	35	31	34	35	28	30	34	25	26
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	35	27	35	32	34	35	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	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	30	34	34	27	30	32	23	26	28	32	23
			Exposed	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	26	35	32	24	35	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	37	43	38	31	42	33	27	40	29	24	39	25	32	37	34	28
			Exposed	44	44	44	44	44	44	44	44	42	44	44	38	44	41	34	44	38	31	44	34	28	44	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	55	55	55	55	55	55	55	55	55	53	53	53	52	52	52	51	51	51	49	49	49	47	47	44	44	44	38	42	41	33	40	36	29	36	32	25	32	28	34
			Exposed	55	55	55	55	55	55	55	55	50	53	53	45	52	52	41	51	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
100	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	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	25	28	28	34	28	28	30
		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	27
			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	26	29	29	34	29	27	30	29	24	27
		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	36	36	36	36	36	36	36	36	36	32
			Exposed	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	31	36	33	27	36	29	24	36	26	32
		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	44	44	44	42	42	42	41	41	41	40	40	39
			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	43	44	44	37	42	41	33	40	36	29	36	32	25
	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	28	28	28	27	28	28	36	28	28	32
			Exposed	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	35	28	28	30	28	25	27	28	33	23	27	29	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	27	29	29	24	29	28	32	29	25	28
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	24	29	28	31	29	24	27	29	32	24	25	28	21	34	25	18
		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	33	36	35	29	35	30	25	34	27	34
			Exposed	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	26	32	36	34	28	34	30	25	30	27	22
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	43	43	41	41	41	40	40	39	38	38	34	36	36	30	35	34	27
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	43	43	35	41	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	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	29	31	31	29	31	31	26	31	31	34	31	28	30	31	25	26
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	31	34	31	27	29	31	36	25	28	31	22	25	28	20	33	24	17
		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	30	32	32	26	32	30	34	32	27	30	31	23	26	28	32	23
			Exposed	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	26	32	32	24	32	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		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	37	39	38	31	39	33	27	37	29	24	36	25	32	35	34	28
			Exposed	39	39	39	39	39	39	39	39	39	39	39	38	39	39	34	39	38	31	39	34	28	39	29	24	39	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	48	48	48	47	47	47	46	46	46	44	44	44	42	42	38	40	40	33	38	36	29	36	32	25	32	28	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	45	48	48	41	47	47	37	46	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	86	86	86	86	86	84	86	86	80	86	86	70	86	84	59	86	81	50	86	75	43	83	57	36	74	45	31	59	38	27	48	33	23	40	29	21	36	26	18
			Exposed	86	84	58	86	80	48	86	70	41	84	59	37	81	51	34	73	44	31	63	40	28	48	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	86	86	86	86	86	81	86	86	72	86	85	58	86	81	48	86	73	42	86	61	38	80	44	32	60	37	27	45	32	24	38	28	21	34	25	18	30	22	16
			Exposed	86	81	48	86	69	41	85	56	36	81	46	33	71	40	30	59	37	27	49	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	87	87	87	87	87	87	87	87	85	87	87	81	87	84	71	87	81	59	87	72	49	87	51	39	83	40	33	75	35	29	59	30	25	48	27	22	41	24	20
			Exposed	87	84	71	87	80	56	87	66	45	87	54	40	86	44	36	83	40	33	80	36	30	60	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	19
		27-45	Interior	87	87	87	87	87	87	87	87	87	87	87	86	87	87	83	87	87	80	87	84	68	84	74	50	74	56	40	55	44	34	42	38	30	37	33	26	33	30	24
			Exposed	87	87	83	87	86	77	87	82	62	84	77	52	81	65	44	72	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	86	86	64	86	82	53	86	76	44	86	64	39	82	55	36	79	48	32	69	42	30	53	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	82	55	36	76	46	32	64	40	28	55	36	26	47	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	86	83	53	86	77	43	86	62	38	83	51	35	79	43	31	66	39	29	55	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	79	42	31	62	38	28	50	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	87	86	79	87	82	62	87	74	50	87	60	42	87	49	38	85	42	35	82	38	32	66	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	87	49	38	84	41	34	80	37	30	69	33	27	58	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	87	87	84	87	87	81	87	84	69	86	81	57	83	71	48	80	60	42	67	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	83	71	48	77	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	86	80	47	86	67	40	83	57	36	80	48	33	69	42	30	59	38	27	51	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	68	42	30	57	37	26	48	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	86	67	40	84	54	36	80	44	32	67	39	29	55	35	26	46	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	54	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	87	80	54	87	63	44	87	51	39	85	42	35	82	38	32	76	35	29	65	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	81	38	31	73	34	28	60	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	87	85	75	87	81	60	84	73	49	80	61	42	67	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	66	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
10	B	0-7	Interior	71	71	71	71	71	71	71	71	71	71	71	70	71	71	59	71	71	50	71	71	43	71	57	36	71	45	31	59	38	27	48	33	23	40	29	21	36	26	18
			Exposed	71	71	58	71	71	48	71	70	41	71	59	37	71	51	34	71	44	31	63	40	28	48	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	72	72	72	72	72	72	72	72	72	72	72	58	72	72	48	72	72	42	72	61	38	72	44	32	60	37	27	45	32	24	38	28	21	34	25	18	30	22	16
			Exposed	72	72	48	72	69	41	72	56	36	72	46	33	71	40	30	59	37	27	49	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	82	82	82	82	82	82	82	82	82	82	82	81	82	82	71	82	81	59	82	72	49	82	51	39	82	40	33	75	35	29	59	30	25	48	27	22	41	24	20
			Exposed	82	82	71	82	80	56	82	66	45	82	54	40	82	44	36	82	40	33	80	36	30	60	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	19
		27-45	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	83	86	86	80	86	84	68	84	74	50	74	56	40	55	44	34	42	38	30	37	33	26	33	30	24
			Exposed	86	86	83	86	86	77	86	82	62	84	77	52	81	65	44	72	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	71	71	64	71	71	53	71	71	44	71	64	39	71	55	36	71	48	32	69	42	30	53	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	71	55	36	71	46	32	64	40	28	55	36	26	47	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	72	72	53	72	72	43	72	62	38	72	51	35	72	43	31	66	39	29	55	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	72	42	31	62	38	28	50	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	82	82	79	82	82	62	82	74	50	82	60	42	82	49	38	82	42	35	82	38	32	66	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	82	49	38	82	41	34	80	37	30	69	33	27	58	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	86	86	84	86	86	81	86	84	69	86	81	57	83	71	48	80	60	42	67	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	83	71	48	77	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	71	71	47	71	67	40	71	57	36	71	48	33	69	42	30	59	38	27	51	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	68	42	30	57	37	26	48	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	72	67	40	72	54	36	72	44	32	67	39	29	55	35	26	46	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	54	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	84	80	54	84	63	44	84	51	39	84	42	35	82	38	32	76	35	29	65	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	81	38	31	73	34	28	60	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	87	85	75	87	81	60	84	73	49	80	61	42	67	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	66	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
20	B	0-7	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	50	53	53	43	53	53	36	53	45	31	53	38	27	48	33	23	40	29	21	36	26	18
			Exposed	53	53	53	53	53	48	53	53	41	53	53	37	53	51	34	53	44	31	53	40	28	48	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	53	53	42	53	53	38	53	44	32	53	37	27	45	32	24	38	28	21	34	25	18	30	22	16
			Exposed	53	53	48	53	53	41	53	53	36	53	46	33	53	40	30	53	37	27	49	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	49	65	51	39	65	40	33	65	35	29	59	30	25	48	27	22	41	24	20
			Exposed	65	65	65	65	65	56	65	65	45	65	54	40	65	44	36	65	40	33	65	36	30	60	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	19
		27-45	Interior	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	68	72	72	50	72	56	40	55	44	34	42	38	30	37	33	26	33	30	24
			Exposed	72	72	72	72	72	72	72	72	62	72	72	52	72	65	44	72	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	53	53	53	53	53	53	53	53	44	53	53	39	53	53	36	53	48	32	53	42	30	53	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	53	53	36	53	46	32	53	40	28	53	36	26	47	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	53	53	53	53	53	43	53	53	38	53	51	35	53	43	31	53	39	29	53	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	53	42	31	53	38	28	50	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	65	65	65	65	65	62	65	65	50	65	60	42	65	49	38	65	42	35	65	38	32	65	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	65	49	38	65	41	34	65	37	30	65	33	27	58	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	72	72	72	72	72	72	72	72	69	72	72	57	72	71	48	72	60	42	67	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	72	71	48	72	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	53	53	47	53	53	40	53	53	36	53	48	33	53	42	30	53	38	27	51	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	53	42	30	53	37	26	48	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	53	53	40	53	53	36	53	44	32	53	39	29	53	35	26	46	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	53	35	26	44	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	68	68	54	68	63	44	68	51	39	68	42	35	68	38	32	68	35	29	65	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	68	38	31	68	34	28	60	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	75	75	75	75	75	60	75	73	49	75	61	42	67	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	66	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 3.00	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	36	42	42	31	42	38	27	42	33	23	40	29	21	36	26	18
			Exposed	42	42	42	42	42	42	42	42	41	42	42	37	42	42	34	42	42	31	42	40	28	42	34	24	40	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	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	37	27	42	32	24	38	28	21	34	25	18	30	22	16
			Exposed	42	42	42	42	42	41	42	42	36	42	42	33	42	40	30	42	37	27	42	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		20-27	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	49	53	51	39	53	40	33	53	35	29	53	30	25	48	27	22	41	24	20
			Exposed	53	53	53	53	53	53	53	53	45	53	53	40	53	44	36	53	40	33	53	36	30	53	31	25	46	26	22	39	23	19	34	20	16	30	17	14	26	15	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	50	59	56	40	54	44	34	42	38	30	37	33	26	33	30	24
			Exposed	61	61	61	61	61	61	61	61	61	61	61	52	61	61	44	61	55	39	60	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	42	42	42	42	42	42	42	42	42	42	42	39	42	42	36	42	42	32	42	42	30	42	36	25	42	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	42	42	36	42	42	32	42	40	28	42	36	26	42	33	23	41	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	42	42	42	42	42	42	42	42	38	42	42	35	42	42	31	42	39	29	42	35	26	41	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	42	42	31	42	38	28	42	34	25	42	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	53	53	53	53	53	53	53	53	50	53	53	42	53	49	38	53	42	35	53	38	32	53	32	27	51	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	53	49	38	53	41	34	53	37	30	53	33	27	53	30	25	50	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	57	61	61	48	60	60	42	57	52	38	48	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	61	61	48	61	58	41	61	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	42	42	42	42	42	40	42	42	36	42	42	33	42	42	30	42	38	27	42	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	42	42	30	42	37	26	42	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	42	42	40	42	42	36	42	42	32	42	39	29	42	35	26	42	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	42	35	26	42	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	56	56	54	56	56	44	56	51	39	56	42	35	56	38	32	56	35	29	56	32	26	49	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	56	38	31	56	34	28	56	31	25	50	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	64	64	64	64	64	60	64	64	49	63	61	42	60	52	38	55	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	64	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
40	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	36	39	39	31	39	38	27	39	33	23	39	29	21	36	26	18
			Exposed	39	39	39	39	39	39	39	39	39	39	39	37	39	39	34	39	39	31	39	39	28	39	34	24	39	29	20	34	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	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	37	27	39	32	24	38	28	21	34	25	18	30	22	16
			Exposed	39	39	39	39	39	39	39	39	36	39	39	33	39	39	30	39	37	27	39	33	25	39	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		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	39	45	40	33	45	35	29	45	30	25	43	27	22	41	24	20
			Exposed	45	45	45	45	45	45	45	45	45	45	45	40	45	44	36	45	40	33	45	36	30	45	31	25	45	26	22	39	23	19	34	20	16	30	17	14	26	15	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	50	50	50	40	47	44	34	42	38	30	37	33	26	33	30	24
			Exposed	53	53	53	53	53	53	53	53	53	53	53	52	53	53	44	53	53	39	53	47	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	39	39	39	39	39	39	39	39	39	39	39	39	39	39	36	39	39	32	39	39	30	39	36	25	39	30	21	36	26	19	32	23	16	28	20	14	25	18	19
			Exposed	39	39	36	39	39	32	39	39	28	39	36	26	39	33	23	39	30	21	38	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	39	39	39	39	39	39	39	39	38	39	39	35	39	39	31	39	39	29	39	35	26	39	30	22	35	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	39	39	31	39	38	28	39	34	25	39	31	23	38	28	21	35	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	42	45	45	38	45	42	35	45	38	32	45	32	27	43	28	23	41	24	20	36	21	17	32	18	15	28	16	20
			Exposed	45	45	38	45	41	34	45	37	30	45	33	27	45	30	25	45	27	23	43	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	48	51	51	42	49	49	38	45	41	32	39	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	53	53	48	53	53	41	53	48	36	50	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	42	42	42	42	42	40	42	42	36	42	42	33	42	42	30	42	38	27	42	35	25	41	30	21	35	25	18	30	22	15	26	19	20	23	17	18	20	15	16
			Exposed	42	42	30	42	37	26	42	33	24	42	30	21	38	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	42	42	40	42	42	36	42	42	32	42	39	29	42	35	26	42	32	24	40	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	42	35	26	42	31	23	39	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	48	48	48	48	48	44	48	48	39	48	42	35	48	38	32	48	35	29	48	32	26	46	27	22	39	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	48	38	31	48	34	28	48	31	25	48	28	23	43	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	56	56	56	56	56	56	56	56	49	54	54	42	52	52	38	50	44	35	47	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	56	51	38	53	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
50	B	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	31	33	33	31	33	33	27	33	33	23	33	29	21	33	26	18
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	33	33	28	33	33	24	33	29	20	33	25	18	30	22	15	26	19	20	23	17	18
		7-20	Interior	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	32	24	33	28	21	32	25	18	30	22	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	33	34	34	30	34	34	27	34	33	25	34	28	21	33	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		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	39	40	40	33	40	35	29	39	30	25	38	27	22	36	24	20
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	36	40	40	33	40	36	30	40	31	25	40	26	22	39	23	19	34	20	16	30	17	14	26	15	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	43	43	40	41	41	34	39	38	30	37	33	26	33	30	24
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	39	46	46	36	43	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	15
	C	0-7	Interior	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	30	33	33	25	33	30	21	33	26	19	32	23	16	28	20	14	25	18	19
			Exposed	33	33	33	33	33	32	33	33	28	33	33	26	33	33	23	33	30	21	33	27	19	32	23	16	27	20	14	24	17	18	21	15	16	18	20	14	16	18	~~13~~
		7-20	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	31	34	34	29	34	34	26	34	30	22	33	26	19	30	22	16	26	19	14	23	17	19	21	15	17
			Exposed	34	34	31	34	34	28	34	34	25	34	31	23	34	28	21	34	25	19	32	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	38	32	40	32	27	38	28	23	36	24	20	35	21	17	32	18	15	28	16	20
			Exposed	40	40	38	40	40	34	40	37	30	40	33	27	40	30	25	40	27	23	40	25	21	36	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	42	43	43	38	40	40	32	38	35	28	34	30	24	29	26	21	26	23	18	23	21	16
			Exposed	46	46	46	46	46	41	46	46	36	46	41	33	42	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	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	15	26	19	20	23	17	18	20	15	16
			Exposed	36	36	30	36	36	26	36	33	24	36	30	21	36	27	19	34	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	37	37	37	37	37	36	37	37	32	37	37	29	37	35	26	37	32	24	36	29	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	37	35	26	37	31	23	37	28	21	35	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	42	42	42	42	42	42	42	42	39	42	42	35	42	38	32	42	35	29	42	32	26	40	27	22	38	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	42	38	31	42	34	28	42	31	25	42	28	23	42	25	21	39	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	49	49	49	49	49	49	49	49	49	47	47	42	45	45	38	44	44	35	42	40	32	38	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	49	49	38	49	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 3.00	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	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	23	28	28	21	28	26	18
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	24	28	28	20	28	25	18	28	22	15	26	19	20	23	17	18
		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	24	29	28	21	29	25	18	28	22	16
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	28	21	29	24	18	29	21	15	25	18	21	22	16	18	20	14	16
		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	33	35	35	33	35	35	29	34	30	25	33	27	22	32	24	20
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	35	31	25	35	26	22	35	23	19	34	20	16	30	17	14	26	15	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	39	39	39	37	37	34	35	35	30	34	33	26	32	30	24
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	36	41	38	30	37	33	26	32	28	23	28	25	20	24	22	17	22	19	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	25	28	28	21	28	26	19	28	23	16	28	20	14	25	18	19
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	23	28	28	21	28	27	19	28	23	16	27	20	14	24	17	18	21	15	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	29	22	29	26	19	28	22	16	26	19	14	23	17	19	21	15	17
			Exposed	29	29	29	29	29	28	29	29	25	29	29	23	29	28	21	29	25	19	29	23	17	27	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		20-27	Interior	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	32	27	34	28	23	32	24	20	31	21	17	30	18	15	28	16	20
			Exposed	35	35	35	35	35	34	35	35	30	35	33	27	35	30	25	35	27	23	35	25	21	35	21	17	31	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	39	39	38	38	38	36	36	32	34	34	28	32	30	24	29	26	21	26	23	18	23	21	16
			Exposed	41	41	41	41	41	41	41	41	36	41	41	33	41	38	30	38	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	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	15	26	19	20	23	17	18	20	15	16
			Exposed	31	31	30	31	31	26	31	31	24	31	30	21	31	27	19	31	25	18	31	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	32	32	32	32	32	32	32	32	32	32	32	29	32	32	26	32	32	24	32	29	22	31	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	32	32	26	32	31	23	32	28	21	32	25	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	38	38	38	38	38	38	38	38	38	38	38	35	38	38	32	38	35	29	37	32	26	36	27	22	34	23	19	33	20	16	30	17	14	26	15	19	23	14	17
			Exposed	38	38	31	38	34	28	38	31	25	38	28	23	38	25	21	38	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	44	44	44	44	44	44	44	44	44	42	42	42	41	41	38	39	39	35	38	38	32	36	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	44	44	38	44	43	34	43	38	30	39	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
70	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	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	18	24	22	15	24	19	20	23	17	18
		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	25	25	25	25	25	25	24	25	25	21	25	25	18	25	22	16
			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	18	25	21	15	25	18	21	22	16	18	20	14	16
		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	30	30	30	30	30	30	29	30	30	25	30	27	22	29	24	20
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	25	30	26	22	30	23	19	30	20	16	30	17	14	26	15	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	35	35	35	34	34	34	32	32	30	31	31	26	30	30	24
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37	37	30	35	33	26	32	28	23	28	25	20	24	22	17	22	19	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	21	24	24	19	24	23	16	24	20	14	24	18	19
			Exposed	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	14	24	17	18	21	15	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	25	19	25	22	16	24	19	14	23	17	19	21	15	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	25	19	25	23	17	25	20	14	23	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~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	27	30	28	23	29	24	20	28	21	17	27	18	15	26	16	20
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	30	27	23	30	25	21	30	21	17	30	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	36	36	36	35	35	35	33	33	32	31	31	28	30	30	24	28	26	21	26	23	18	23	21	16
			Exposed	37	37	37	37	37	37	37	37	36	37	37	33	37	37	30	36	34	27	35	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	0-7	Interior	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	27	22	15	26	19	20	23	17	18	20	15	16
			Exposed	27	27	27	27	27	26	27	27	24	27	27	21	27	27	19	27	25	18	27	23	16	26	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		7-20	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	27	24	27	27	22	27	25	18	27	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	27	27	26	27	27	23	27	27	21	27	25	19	27	23	17	27	21	16	26	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	34	34	34	34	34	34	34	34	34	34	34	34	34	34	32	34	34	29	34	32	26	32	27	22	31	23	19	30	20	16	29	17	14	26	15	19	23	14	17
			Exposed	34	34	31	34	34	28	34	31	25	34	28	23	34	25	21	34	23	19	34	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	40	40	40	40	40	40	39	39	39	38	38	38	37	37	37	36	36	35	35	35	32	33	33	27	31	29	23	28	25	20	24	22	17	22	19	15	19	17	21
			Exposed	40	40	38	40	40	34	39	38	30	38	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
80	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	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	21	21	21	20	21	21	18	21	21	15	21	19	20	21	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	21	22	22	18	22	22	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	22	18	22	21	15	22	18	21	22	16	18	20	14	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	25	27	27	22	27	24	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	25	27	26	22	27	23	19	27	20	16	27	17	14	26	15	19
		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	34	32	32	32	31	31	31	30	30	30	29	29	26	28	28	24
			Exposed	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	30	32	32	26	31	28	23	28	25	20	24	22	17	22	19	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	19	21	21	16	21	20	14	21	18	19
			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	14	21	17	18	21	15	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	22	16	22	19	14	21	17	19	21	15	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	22	17	22	20	14	22	17	19	20	14	16	17	19	14	15	17	~~12~~	21	15	~~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	27	27	27	23	27	24	20	26	21	17	25	18	15	24	16	20
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	27	27	23	27	25	21	27	21	17	27	18	15	27	16	20	23	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	31	31	31	29	29	28	28	28	24	26	26	21	25	23	18	23	21	16
			Exposed	34	34	34	34	34	34	34	34	34	34	34	33	33	33	30	33	33	27	32	31	25	30	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	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	21	24	24	18	24	22	15	24	19	20	23	17	18	20	15	16
			Exposed	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	23	16	24	19	14	23	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		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	24	18	24	21	16	24	18	14	22	16	18	19	14	16	17	19	14
			Exposed	24	24	24	24	24	23	24	24	21	24	24	19	24	23	17	24	21	16	24	19	14	22	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	26	30	27	22	28	23	19	27	20	16	26	17	14	25	15	19	23	14	17
			Exposed	30	30	30	30	30	28	30	30	25	30	28	23	30	25	21	30	23	19	30	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	37	37	37	37	37	37	36	36	36	35	35	35	34	34	34	33	33	33	32	32	32	31	31	27	29	29	23	27	25	20	24	22	17	22	19	15	19	17	21
			Exposed	37	37	37	37	37	34	36	36	30	35	35	27	34	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 3.00	19 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	19	19	19	19	19	19	19	19	19	19	19	19	19	19	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
			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	18	19	19	15	19	19	20	19	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	16	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	19	15	19	18	21	19	16	18	19	14	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	22	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	23	19	24	20	16	24	17	14	24	15	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	29	29	29	28	28	28	27	27	26	26	26	24
			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	29	28	23	28	25	20	24	22	17	22	19	15
	C	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	19	19	19	16	19	19	14	19	18	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	14	19	17	18	19	15	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	19	14	19	17	19	19	15	17
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	14	19	17	19	19	14	16	17	19	14	15	17	~~12~~	21	15	~~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	23	24	24	20	24	21	17	23	18	15	22	16	20
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	21	17	24	18	15	24	16	20	23	14	17	21	18	15	18	16	~~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	28	28	28	27	27	27	26	26	24	25	25	21	23	23	18	22	21	16
			Exposed	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	28	27	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	D	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	18	21	21	15	21	19	20	21	17	18	20	15	16
			Exposed	21	21	21	21	21	21	21	21	21	21	21	21	21	21	19	21	21	18	21	21	16	21	19	14	21	16	18	20	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		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	18	21	21	16	21	18	14	21	16	18	19	14	16	17	19	14
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		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	22	26	23	19	25	20	16	24	17	14	23	15	19	23	14	17
			Exposed	26	26	26	26	26	26	26	26	25	26	26	23	26	25	21	26	23	19	26	21	17	26	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	30	29	29	27	27	27	23	26	25	20	24	22	17	22	19	15	19	17	21
			Exposed	33	33	33	33	33	33	33	33	30	33	33	27	32	31	25	31	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
100	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	15	17	17	20	17	17	18
		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	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	15	17	17	21	17	16	18	17	14	16
		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	22	22	22	22	22	22	22	22	22	22	22	22	20
			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	19	22	20	16	22	17	14	22	15	19
		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	26	26	26	25	25	25	24	24	24
			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	26	27	27	23	26	25	20	24	22	17	22	19	15
	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	14	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	14	17	17	18	17	15	16	17	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	14	17	17	19	17	15	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	14	17	17	19	17	14	16	17	19	14	15	17	~~12~~	21	15	~~11~~
		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	22	22	22	20	22	21	17	21	18	15	21	16	20
			Exposed	22	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	15	22	16	20	22	14	17	21	18	15	18	16	~~13~~
		27-45	Interior	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	26	26	26	25	25	25	24	24	24	23	23	21	22	22	18	21	21	16
			Exposed	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	26	26	21	25	23	18	22	20	16	19	17	14	17	15	18	15	20	16
	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	15	19	19	20	19	17	18	19	15	16
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18	19	19	16	19	19	14	19	16	18	19	14	15	17	19	~~13~~	15	17	~~12~~	20	15	~~10~~
		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	18	19	19	16	19	18	14	19	16	18	19	14	16	17	19	14
			Exposed	19	19	19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	16	19	19	14	19	16	18	19	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	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	22	24	23	19	23	20	16	23	17	14	22	15	19	21	14	17
			Exposed	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	23	19	24	21	17	24	18	15	24	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	27	27	27	25	25	23	24	24	20	23	22	17	22	19	15	19	17	21
			Exposed	30	30	30	30	30	30	30	30	30	30	30	27	30	30	25	29	29	23	28	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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 7-22	II	30 ft	Ss = 3.00	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	102	102	102	102	102	102	102	102	98	102	102	93	102	102	89	102	99	85	102	94	81	102	87	61	94	81	52	88	64	45	83	56	40	73	49	35	60	44	31
			Exposed	102	102	89	102	97	84	102	93	80	102	88	63	98	84	57	94	81	52	90	70	47	83	57	40	69	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	102	102	102	102	102	101	102	102	95	102	102	90	102	100	85	102	95	81	102	91	64	99	83	54	91	62	46	84	54	40	65	47	35	57	42	31	50	37	27
			Exposed	102	100	85	102	94	80	102	89	61	100	84	55	95	80	50	90	62	46	86	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	103	103	103	103	103	103	103	103	103	103	103	100	103	103	95	103	100	90	103	95	86	103	87	65	103	80	56	95	58	48	89	51	42	84	45	37	79	40	33
			Exposed	103	103	95	103	99	89	103	93	84	103	88	80	103	84	60	102	80	55	97	61	50	90	52	43	83	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	102	103	103	97	103	103	93	103	95	85	96	88	78	89	82	58	83	64	51	63	56	45	56	50	40
			Exposed	103	103	102	103	103	96	103	101	91	103	96	86	100	91	82	95	87	71	91	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	102	102	91	102	100	86	102	95	82	102	91	69	101	87	60	96	83	55	92	80	50	85	60	42	80	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	101	86	60	95	82	53	90	73	48	86	61	43	83	55	39	79	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	102	102	88	102	97	83	102	91	65	102	86	58	98	82	53	93	65	48	88	60	44	81	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	97	82	53	91	64	47	86	57	42	82	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	103	103	98	103	102	92	103	96	87	103	91	82	103	86	64	103	82	58	100	64	53	92	54	45	85	47	39	80	40	33	60	35	29	53	31	26	47	28	23
			Exposed	103	86	64	103	81	57	98	62	51	93	56	46	89	51	42	85	46	38	81	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	103	103	103	103	103	99	103	103	94	103	99	89	103	94	85	98	90	81	94	86	64	86	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	103	94	84	97	89	80	91	84	61	87	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	102	97	83	102	92	77	102	87	61	97	83	55	92	80	50	88	64	45	85	59	42	75	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	92	80	50	87	63	44	83	56	40	79	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	102	93	80	102	88	60	99	83	54	93	69	49	88	60	44	84	54	40	80	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	88	59	44	83	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	103	98	88	103	92	83	103	87	65	103	82	59	100	64	53	95	59	48	91	54	44	84	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	100	64	53	94	57	47	89	51	42	85	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	64	89	82	58	85	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	93	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	93	95	95	89	95	95	85	95	94	81	95	87	61	94	81	52	88	64	45	83	56	40	73	49	35	60	44	31
			Exposed	95	95	89	95	95	84	95	93	80	95	88	63	95	84	57	94	81	52	90	70	47	83	57	40	69	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	96	96	96	96	96	96	96	96	95	96	96	90	96	96	85	96	95	81	96	91	64	96	83	54	91	62	46	84	54	40	65	47	35	57	42	31	50	37	27
			Exposed	96	96	85	96	94	80	96	89	61	96	84	55	95	80	50	90	62	46	86	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	100	100	90	100	95	86	100	87	65	100	80	56	95	58	48	89	51	42	84	45	37	79	40	33
			Exposed	100	100	95	100	99	89	100	93	84	100	88	80	100	84	60	100	80	55	97	61	50	90	52	43	83	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	97	102	102	93	102	95	85	96	88	78	89	82	58	83	64	51	63	56	45	56	50	40
			Exposed	102	102	102	102	102	96	102	101	91	102	96	86	100	91	82	95	87	71	91	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	95	95	91	95	95	86	95	95	82	95	91	69	95	87	60	95	83	55	92	80	50	85	60	42	80	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	95	86	60	95	82	53	90	73	48	86	61	43	83	55	39	79	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	96	96	88	96	96	83	96	91	65	96	86	58	96	82	53	93	65	48	88	60	44	81	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	96	82	53	91	64	47	86	57	42	82	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	100	100	98	100	100	92	100	96	87	100	91	82	100	86	64	100	82	58	100	64	53	92	54	45	85	47	39	80	40	33	60	35	29	53	31	26	47	28	23
			Exposed	100	86	64	100	81	57	98	62	51	93	56	46	89	51	42	85	46	38	81	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	98	90	81	94	86	64	86	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	102	94	84	97	89	80	91	84	61	87	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	95	95	83	95	92	77	95	87	61	95	83	55	92	80	50	88	64	45	85	59	42	75	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	92	80	50	87	63	44	83	56	40	79	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	96	93	80	96	88	60	96	83	54	93	69	49	88	60	44	84	54	40	80	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	88	59	44	83	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	101	98	88	101	92	83	101	87	65	101	82	59	100	64	53	95	59	48	91	54	44	84	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	100	64	53	94	57	47	89	51	42	85	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	103	103	95	103	100	90	103	95	85	99	90	81	93	86	64	89	82	58	85	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	93	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
20	B	0-7	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	61	86	81	52	86	64	45	83	56	40	73	49	35	60	44	31
			Exposed	86	86	86	86	86	84	86	86	80	86	86	63	86	84	57	86	81	52	86	70	47	83	57	40	69	48	34	57	42	30	50	37	26	44	32	23	39	29	31
		7-20	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	81	86	86	64	86	83	54	86	62	46	84	54	40	65	47	35	57	42	31	50	37	27
			Exposed	86	86	85	86	86	80	86	86	61	86	84	55	86	80	50	86	62	46	86	56	42	66	48	35	56	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	90	92	92	86	92	87	65	92	80	56	92	58	48	89	51	42	84	45	37	79	40	33
			Exposed	92	92	92	92	92	89	92	92	84	92	88	80	92	84	60	92	80	55	92	61	50	90	52	43	83	44	37	65	38	32	57	33	28	50	29	24	45	26	33
		27-45	Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	93	96	95	85	96	88	78	89	82	58	83	64	51	63	56	45	56	50	40
			Exposed	96	96	96	96	96	96	96	96	91	96	96	86	96	91	82	95	87	71	91	84	60	83	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	Interior	86	86	86	86	86	86	86	86	82	86	86	69	86	86	60	86	83	55	86	80	50	85	60	42	80	51	36	61	44	31	53	39	27	47	34	24	41	30	32
			Exposed	86	86	60	86	82	53	86	73	48	86	61	43	83	55	39	79	50	36	63	46	33	54	39	28	46	33	24	40	29	31	35	25	27	31	34	24	27	30	~~21~~
		7-20	Interior	86	86	86	86	86	83	86	86	65	86	86	58	86	82	53	86	65	48	86	60	44	81	50	37	59	43	32	51	37	28	45	33	24	39	29	32	35	26	29
			Exposed	86	82	53	86	64	47	86	57	42	82	52	38	64	47	35	58	43	32	53	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	~~21~~	23	25	~~19~~
		20-27	Interior	92	92	92	92	92	92	92	92	87	92	91	82	92	86	64	92	82	58	92	64	53	92	54	45	85	47	39	80	40	33	60	35	29	53	31	26	47	28	23
			Exposed	92	86	64	92	81	57	92	62	51	92	56	46	89	51	42	85	46	38	81	42	35	61	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	96	96	96	96	96	96	96	96	94	96	96	89	96	94	85	96	90	81	94	86	64	86	79	54	65	58	46	56	51	40	49	44	35	44	39	31	39	35	28
			Exposed	96	94	84	96	89	80	91	84	61	87	80	55	82	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	86	86	83	86	86	77	86	86	61	86	83	55	86	80	50	86	64	45	85	59	42	75	50	35	58	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	86	80	50	86	63	44	83	56	40	79	51	36	63	46	33	58	42	30	53	38	27	45	33	23	38	28	30	33	24	26	29	32	~~23~~	25	28	~~20~~	34	25	~~18~~
		7-20	Interior	86	86	80	86	86	60	86	83	54	86	69	49	86	60	44	84	54	40	80	50	37	57	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	86	59	44	83	53	39	65	48	35	59	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	~~20~~	33	24	~~18~~	29	~~21~~	~~16~~
		20-27	Interior	94	94	88	94	92	83	94	87	65	94	82	59	94	64	53	94	59	48	91	54	44	84	45	38	70	39	32	57	34	28	50	29	24	44	26	32	39	23	29
			Exposed	94	64	53	94	57	47	89	51	42	85	46	38	81	42	35	67	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	~~21~~	26	23	~~19~~
		27-45	Interior	97	97	95	97	97	90	97	95	85	97	90	81	93	86	64	89	82	58	85	75	53	63	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	93	86	64	88	81	57	83	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	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 7-22	II	30 ft	Ss = 3.00	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	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	40	47	47	35	47	44	31
			Exposed	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	34	47	42	30	47	37	26	44	32	23	39	29	31
		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	48	48	48	46	48	48	40	48	47	35	48	42	31	47	37	27
			Exposed	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	42	48	48	35	48	41	30	48	35	26	42	31	23	37	27	31	33	24	27
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	56	59	58	48	58	51	42	56	45	37	54	40	33	54	40	33
			Exposed	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	55	59	59	50	59	52	43	59	44	37	59	38	32	57	33	28	50	29	24	45	26	33
		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	69	65	65	65	62	62	58	59	59	51	57	56	45	54	50	40
			Exposed	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	60	69	65	51	62	55	44	53	48	38	47	42	33	41	37	29	37	33	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	42	47	47	36	47	44	31	47	39	27	47	34	24	41	30	32
			Exposed	47	47	47	47	47	47	47	47	47	47	47	43	47	47	39	47	47	36	47	46	33	47	39	28	46	33	24	40	29	31	35	25	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	48	37	48	43	32	47	37	28	45	33	24	39	29	32	35	26	29
			Exposed	48	48	48	48	48	47	48	48	42	48	48	38	48	47	35	48	43	32	48	39	29	45	33	24	39	28	32	33	24	27	29	32	24	26	29	21	23	25	19
		20-27	Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	53	59	54	45	56	47	39	54	40	33	52	35	29	50	31	26	47	28	23
			Exposed	59	59	59	59	59	57	59	59	51	59	56	46	59	51	42	59	46	38	59	42	35	59	36	30	52	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	66	66	66	64	64	64	61	61	54	57	57	46	54	51	40	49	44	35	44	39	31	39	35	28
			Exposed	69	69	69	69	69	69	69	69	61	69	69	55	68	63	50	64	58	46	59	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	52	52	52	52	52	52	52	52	52	52	52	52	52	52	50	52	52	45	52	52	42	52	50	35	52	43	30	51	37	26	44	32	23	39	28	30	35	25	27
			Exposed	52	52	50	52	52	44	52	52	40	52	51	36	52	46	33	52	42	30	52	38	27	45	33	23	38	28	30	33	24	26	29	32	23	25	28	20	34	25	18
		7-20	Interior	53	53	53	53	53	53	53	53	53	53	53	49	53	53	44	53	53	40	53	50	37	52	42	31	49	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	53	53	44	53	53	39	53	48	35	53	43	32	53	39	29	49	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	63	63	63	63	63	63	63	63	63	63	63	59	63	63	53	63	59	48	63	54	44	60	45	38	57	39	32	55	34	28	50	29	24	44	26	32	39	23	29
			Exposed	63	63	53	63	57	47	63	51	42	63	46	38	63	42	35	63	38	32	60	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	74	74	74	74	74	74	74	74	74	72	72	72	69	69	64	66	66	58	64	64	53	60	57	45	54	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	74	74	64	74	74	57	74	64	51	65	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
70	B	0-7	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	40	41	41	35	41	41	31
			Exposed	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	41	30	41	37	26	41	32	23	39	29	31
		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	41	41	41	41	41	41	40	41	41	35	41	41	31	41	37	27
			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	41	30	41	35	26	41	31	23	37	27	31	33	24	27
		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	48	51	51	42	50	45	37	49	40	33
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	43	51	44	37	51	38	32	51	33	28	50	29	24	45	26	33
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	59	59	59	57	57	57	54	54	51	52	52	45	50	50	40
			Exposed	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	60	62	62	51	59	55	44	53	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	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	36	41	41	31	41	39	27	41	34	24	41	30	32
			Exposed	41	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41	41	36	41	41	33	41	39	28	41	33	24	40	29	31	35	25	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	37	41	41	32	41	37	28	41	33	24	39	29	32	35	26	29
			Exposed	41	41	41	41	41	41	41	41	41	41	41	38	41	41	35	41	41	32	41	39	29	41	33	24	39	28	32	33	24	27	29	32	24	26	29	21	23	25	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	45	51	47	39	49	40	33	47	35	29	46	31	26	44	28	23
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	51	51	42	51	46	38	51	42	35	51	36	30	51	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	63	63	63	63	63	63	63	63	63	63	63	63	61	61	61	60	60	60	58	58	58	56	56	54	53	53	46	50	50	40	47	44	35	44	39	31	39	35	28
			Exposed	63	63	63	63	63	63	63	63	61	63	63	55	61	61	50	60	58	46	58	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	35	45	43	30	45	37	26	44	32	23	39	28	30	35	25	27
			Exposed	45	45	45	45	45	44	45	45	40	45	45	36	45	45	33	45	42	30	45	38	27	45	33	23	38	28	30	33	24	26	29	32	23	25	28	20	34	25	18
		7-20	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	46	46	40	46	46	37	46	42	31	45	36	27	43	31	23	37	27	31	33	24	27	29	32	24
			Exposed	46	46	44	46	46	39	46	46	35	46	43	32	46	39	29	46	36	26	44	32	24	38	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	53	56	56	48	56	54	44	54	45	38	52	39	32	50	34	28	48	29	24	44	26	32	39	23	29
			Exposed	56	56	53	56	56	47	56	51	42	56	46	38	56	42	35	56	38	32	56	35	29	51	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	67	67	67	67	67	67	66	66	66	64	64	64	62	62	62	61	61	58	59	59	53	55	55	45	52	49	39	47	42	34	41	37	29	36	33	26	32	29	23
			Exposed	67	67	64	67	67	57	66	64	51	64	58	46	59	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
80	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	36	36	36	36	36	36	36	36	36	36	36	36	35	36	36	31
			Exposed	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	36	30	36	36	26	36	32	23	36	29	31
		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	35	37	37	31	37	37	27
			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	30	37	35	26	37	31	23	37	27	31	33	24	27
		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	42	45	45	37	45	40	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	43	45	44	37	45	38	32	45	33	28	45	29	24	45	26	33
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	56	56	54	54	54	52	52	52	50	50	50	48	48	45	46	46	40
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	56	51	54	54	44	52	48	38	47	42	33	41	37	29	37	33	26
	C	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	36	36	36	36	36	36	31	36	36	27	36	34	24	36	30	32
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	28	36	33	24	36	29	31	35	25	27	31	34	24	27	30	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	37	28	37	33	24	36	29	32	35	26	29
			Exposed	37	37	37	37	37	37	37	37	37	37	37	37	37	37	35	37	37	32	37	37	29	37	33	24	37	28	32	33	24	27	29	32	24	26	29	21	23	25	19
		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	39	45	40	33	43	35	29	42	31	26	40	28	23	40	28	23
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	42	45	45	38	45	42	35	45	36	30	45	31	25	45	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	57	57	57	57	57	57	57	57	57	57	57	56	56	56	56	55	55	55	54	54	54	51	51	51	49	49	46	46	46	40	44	44	35	42	39	31	39	35	28
			Exposed	57	57	57	57	57	57	57	57	57	57	57	55	56	56	50	55	55	46	54	53	42	50	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	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	35	40	40	30	40	37	26	40	32	23	39	28	30	35	25	27
			Exposed	40	40	40	40	40	40	40	40	40	40	40	36	40	40	33	40	40	30	40	38	27	40	33	23	38	28	30	33	24	26	29	32	23	25	28	20	34	25	18
		7-20	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	40	36	27	40	31	23	37	27	31	33	24	27	29	32	24
			Exposed	40	40	40	40	40	39	40	40	35	40	40	32	40	39	29	40	36	26	40	32	24	38	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	48	50	50	44	50	45	38	48	39	32	46	34	28	44	29	24	42	26	32	39	23	29
			Exposed	50	50	50	50	50	47	50	50	42	50	46	38	50	42	35	50	38	32	50	35	29	50	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	61	61	61	61	61	61	61	61	61	59	59	59	57	57	57	56	56	56	54	54	53	51	51	45	49	49	39	46	42	34	41	37	29	36	33	26	32	29	23
			Exposed	61	61	61	61	61	57	61	61	51	59	58	46	57	53	42	54	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	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.

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ASCE 7-22	II	30 ft	Ss = 3.00	19 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	32	32	32	32	32	32	32	32	32	32	32	32	32	32	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
			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	32	23	32	29	31
		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	31	33	33	27
			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	30	33	33	26	33	31	23	33	27	31	33	24	27
		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	37	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	37	40	38	32	40	33	28	40	29	24	40	26	33
		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	50	50	50	48	48	48	47	47	47	45	45	45	43	43	40
			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	50	50	44	48	48	38	47	42	33	41	37	29	37	33	26
	C	0-7	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	31	32	32	27	32	32	24	32	30	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	24	32	29	31	32	25	27	31	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	33	33	24	33	29	32	32	26	29
			Exposed	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	33	24	33	28	32	33	24	27	29	32	24	26	29	21	23	25	19
		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	39	40	40	33	40	35	29	39	31	26	37	28	23
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	36	30	40	31	25	40	27	33	39	23	29	35	31	26	31	27	23
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	47	47	47	45	45	45	43	43	40	41	41	35	39	39	31	38	35	28
			Exposed	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	51	51	46	50	50	42	47	45	35	43	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	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	35	36	36	30	36	36	26	36	32	23	36	28	30	35	25	27
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	33	36	36	30	36	36	27	36	33	23	36	28	30	33	24	26	29	32	23	25	28	20	34	25	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	31	36	36	27	36	31	23	35	27	31	33	24	27	29	32	24
			Exposed	36	36	36	36	36	36	36	36	35	36	36	32	36	36	29	36	36	26	36	32	24	36	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		20-27	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	44	45	45	38	44	39	32	42	34	28	41	29	24	39	26	32	38	23	29
			Exposed	45	45	45	45	45	45	45	45	42	45	45	38	45	42	35	45	38	32	45	35	29	45	30	25	43	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	56	56	56	56	56	56	56	56	56	55	55	55	53	53	53	52	52	52	51	51	51	48	48	45	45	45	39	43	42	34	41	37	29	36	33	26	32	29	23
			Exposed	56	56	56	56	56	56	56	56	51	55	55	46	53	53	42	52	48	38	49	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	23
100	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	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	29	23	29	29	31
		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	27
			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	26	29	29	23	29	27	31	29	24	27
		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	36	36	36	36	36	36	36	36	36	33
			Exposed	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	32	36	33	28	36	29	24	36	26	33
		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	45	45	45	43	43	43	42	42	42	40	40	40
			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	44	45	45	38	43	42	33	41	37	29	37	33	26
	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	29	29	29	29	29	29	29	29	29	27	29	29	24	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	29	29	29	24	29	29	31	29	25	27	29	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	24	29	29	32	29	26	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	24	29	28	32	29	24	27	29	32	24	26	29	21	23	25	19
		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	33	36	35	29	36	31	26	35	28	23
			Exposed	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	31	25	36	27	33	36	23	29	35	31	26	31	27	23
		27-45	Interior	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	44	44	44	42	42	42	41	41	40	39	39	35	37	37	31	35	35	28
			Exposed	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	42	44	44	35	42	38	30	37	33	26	32	29	23	29	26	31	25	23	27
	D	0-7	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	30	32	32	26	32	32	23	32	28	30	32	25	27
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	30	32	32	27	32	32	23	32	28	30	32	24	26	29	32	23	25	28	20	34	25	18
		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	31	33	33	27	33	31	23	33	27	31	32	24	27	29	32	24
			Exposed	33	33	33	33	33	33	33	33	33	33	33	32	33	33	29	33	33	26	33	32	24	33	28	31	32	24	26	28	31	23	24	27	20	33	24	18	29	21	16
		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	38	40	39	32	39	34	28	38	29	24	37	26	32	36	23	29
			Exposed	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	38	32	40	35	29	40	30	25	40	26	32	38	33	28	33	29	24	29	26	21	26	23	19
		27-45	Interior	51	51	51	51	51	51	51	51	51	51	51	51	50	50	50	48	48	48	47	47	47	45	45	45	43	43	39	41	41	34	39	37	29	36	33	26	32	29	23
			Exposed	51	51	51	51	51	51	51	51	51	51	51	46	50	50	42	48	48	38	47	44	35	42	37	30	36	32	25	31	28	33	27	24	29	24	32	26	32	29	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.

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ASCE 7-22	II	30 ft	Ss = 3.00	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	74	74	74	74	74	74	74	74	70	74	74	58	74	74	49	74	72	42	74	62	36	74	48	30	62	38	26	49	32	22	40	28	20	34	24	17	30	22	15
			Exposed	74	74	49	74	69	40	74	58	34	74	49	31	71	42	28	61	37	26	53	33	23	40	28	20	33	24	17	29	21	15	25	18	19	22	16	17	19	14	15
		7-20	Interior	74	74	74	74	74	74	74	74	60	74	74	49	74	74	40	74	61	35	74	51	32	70	37	27	50	31	23	38	27	20	32	23	17	28	21	15	25	18	13
			Exposed	74	74	40	74	58	34	74	47	30	74	38	27	59	34	25	49	31	23	41	28	21	32	24	17	28	20	15	24	17	20	21	15	17	18	13	15	16	18	~~13~~
		20-27	Interior	75	75	75	75	75	75	75	75	75	75	75	75	75	75	60	75	74	49	75	60	41	75	43	32	75	34	28	63	29	24	50	25	21	40	22	18	34	20	16
			Exposed	75	75	59	75	70	47	75	55	38	75	45	33	75	37	30	75	33	27	68	30	25	50	26	21	39	22	18	32	19	16	28	16	14	25	15	18	22	20	16
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	67	76	76	57	76	62	41	62	47	33	46	37	29	35	32	25	31	28	22	28	25	20
			Exposed	76	76	76	76	76	64	76	76	52	76	64	43	75	54	36	60	46	33	50	40	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	C	0-7	Interior	74	74	54	74	74	44	74	64	37	74	54	33	74	46	30	67	40	27	57	35	25	44	30	21	35	25	18	30	22	15	26	19	13	23	17	18	20	15	16
			Exposed	74	46	30	64	39	26	54	34	24	46	30	21	39	27	19	35	25	18	32	23	16	27	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		7-20	Interior	74	74	45	74	65	36	74	52	32	74	43	29	67	36	26	55	32	24	46	30	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	66	35	26	52	32	23	42	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	75	75	67	75	75	52	75	62	42	75	50	35	75	41	32	75	35	29	75	32	26	56	27	22	43	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	75	41	32	75	34	28	70	31	25	58	28	23	49	25	21	42	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	76	76	76	76	76	72	76	76	58	76	71	48	76	60	40	68	51	35	56	43	32	40	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	76	59	40	65	48	34	51	40	30	42	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	74	68	39	74	56	34	74	47	30	68	41	27	57	35	25	49	32	23	43	29	21	34	25	17	29	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	57	35	25	48	31	22	40	28	20	35	25	18	31	23	16	29	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	74	56	33	74	45	30	70	37	27	56	33	24	46	30	22	38	27	20	34	25	18	29	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	45	29	22	37	26	19	32	24	17	29	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	75	67	45	75	53	36	75	43	32	75	35	29	75	32	26	64	29	24	54	27	22	41	22	19	33	19	16	28	17	14	25	15	18	22	19	16	19	17	14
			Exposed	75	32	26	61	28	23	50	25	21	42	23	19	36	21	17	33	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	76	76	62	76	75	50	76	61	41	70	51	35	56	43	32	46	37	29	39	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	56	43	32	44	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
10	B	0-7	Interior	60	60	60	60	60	60	60	60	60	60	60	58	60	60	49	60	60	42	60	60	36	60	48	30	60	38	26	49	32	22	40	28	20	34	24	17	30	22	15
			Exposed	60	60	49	60	60	40	60	58	34	60	49	31	60	42	28	60	37	26	53	33	23	40	28	20	33	24	17	29	21	15	25	18	19	22	16	17	19	14	15
		7-20	Interior	60	60	60	60	60	60	60	60	60	60	60	49	60	60	40	60	60	35	60	51	32	60	37	27	50	31	23	38	27	20	32	23	17	28	21	15	25	18	13
			Exposed	60	60	40	60	58	34	60	47	30	60	38	27	59	34	25	49	31	23	41	28	21	32	24	17	28	20	15	24	17	20	21	15	17	18	13	15	16	18	~~13~~
		20-27	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	60	69	69	49	69	60	41	69	43	32	69	34	28	63	29	24	50	25	21	40	22	18	34	20	16
			Exposed	69	69	59	69	69	47	69	55	38	69	45	33	69	37	30	69	33	27	68	30	25	50	26	21	39	22	18	32	19	16	28	16	14	25	15	18	22	20	16
		27-45	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	67	74	74	57	74	62	41	62	47	33	46	37	29	35	32	25	31	28	22	28	25	20
			Exposed	74	74	74	74	74	64	74	74	52	74	64	43	74	54	36	60	46	33	50	40	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	C	0-7	Interior	60	60	54	60	60	44	60	60	37	60	54	33	60	46	30	60	40	27	57	35	25	44	30	21	35	25	18	30	22	15	26	19	13	23	17	18	20	15	16
			Exposed	60	46	30	60	39	26	54	34	24	46	30	21	39	27	19	35	25	18	32	23	16	27	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		7-20	Interior	60	60	45	60	60	36	60	52	32	60	43	29	60	36	26	55	32	24	46	30	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	60	35	26	52	32	23	42	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	69	69	67	69	69	52	69	62	42	69	50	35	69	41	32	69	35	29	69	32	26	56	27	22	43	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	69	41	32	69	34	28	69	31	25	58	28	23	49	25	21	42	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	74	74	74	74	74	72	74	74	58	74	71	48	74	60	40	68	51	35	56	43	32	40	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	74	59	40	65	48	34	51	40	30	42	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	60	60	39	60	56	34	60	47	30	60	41	27	57	35	25	49	32	23	43	29	21	34	25	17	29	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	57	35	25	48	31	22	40	28	20	35	25	18	31	23	16	29	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	60	56	33	60	45	30	60	37	27	56	33	24	46	30	22	38	27	20	34	25	18	29	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	45	29	22	37	26	19	32	24	17	29	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	71	67	45	71	53	36	71	43	32	71	35	29	71	32	26	64	29	24	54	27	22	41	22	19	33	19	16	28	17	14	25	15	18	22	19	16	19	17	14
			Exposed	71	32	26	61	28	23	50	25	21	42	23	19	36	21	17	33	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	75	75	62	75	75	50	75	61	41	70	51	35	56	43	32	46	37	29	39	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	56	43	32	44	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
20	B	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	42	44	44	36	44	44	30	44	38	26	44	32	22	40	28	20	34	24	17	30	22	15
			Exposed	44	44	44	44	44	40	44	44	34	44	44	31	44	42	28	44	37	26	44	33	23	40	28	20	33	24	17	29	21	15	25	18	19	22	16	17	19	14	15
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	40	45	45	35	45	45	32	45	37	27	45	31	23	38	27	20	32	23	17	28	21	15	25	18	13
			Exposed	45	45	40	45	45	34	45	45	30	45	38	27	45	34	25	45	31	23	41	28	21	32	24	17	28	20	15	24	17	20	21	15	17	18	13	15	16	18	~~13~~
		20-27	Interior	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	49	54	54	41	54	43	32	54	34	28	54	29	24	50	25	21	40	22	18	34	20	16
			Exposed	54	54	54	54	54	47	54	54	38	54	45	33	54	37	30	54	33	27	54	30	25	50	26	21	39	22	18	32	19	16	28	16	14	25	15	18	22	20	16
		27-45	Interior	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60	60	41	60	47	33	46	37	29	35	32	25	31	28	22	28	25	20
			Exposed	60	60	60	60	60	60	60	60	52	60	60	43	60	54	36	60	46	33	50	40	30	36	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	C	0-7	Interior	44	44	44	44	44	44	44	44	37	44	44	33	44	44	30	44	40	27	44	35	25	44	30	21	35	25	18	30	22	15	26	19	13	23	17	18	20	15	16
			Exposed	44	44	30	44	39	26	44	34	24	44	30	21	39	27	19	35	25	18	32	23	16	27	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		7-20	Interior	45	45	45	45	45	36	45	45	32	45	43	29	45	36	26	45	32	24	45	30	22	34	25	18	29	21	16	25	18	14	22	16	18	19	14	16	17	19	14
			Exposed	45	35	26	45	32	23	42	28	21	35	26	19	32	23	17	29	21	16	26	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	Interior	54	54	54	54	54	52	54	54	42	54	50	35	54	41	32	54	35	29	54	32	26	54	27	22	43	23	19	34	20	16	30	17	14	26	15	19	23	14	17
			Exposed	54	41	32	54	34	28	54	31	25	54	28	23	49	25	21	42	23	19	36	21	17	30	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	60	60	60	60	60	60	60	60	58	60	60	48	60	60	40	60	51	35	56	43	32	40	34	27	32	29	23	28	25	20	24	22	17	22	19	15	19	17	14
			Exposed	60	59	40	60	48	34	51	40	30	42	35	27	35	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	44	44	39	44	44	34	44	44	30	44	41	27	44	35	25	44	32	23	43	29	21	34	25	17	29	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	44	35	25	44	31	22	40	28	20	35	25	18	31	23	16	29	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	45	45	33	45	45	30	45	37	27	45	33	24	45	30	22	38	27	20	34	25	18	29	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	45	29	22	37	26	19	32	24	17	29	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	57	57	45	57	53	36	57	43	32	57	35	29	57	32	26	57	29	24	54	27	22	41	22	19	33	19	16	28	17	14	25	15	18	22	19	16	19	17	14
			Exposed	57	32	26	57	28	23	50	25	21	42	23	19	36	21	17	33	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	62	62	62	62	62	50	62	61	41	62	51	35	56	43	32	46	37	29	39	33	26	32	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	56	43	32	44	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~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 7-22	II	30 ft	Ss = 3.00	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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) | | |

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	22	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	23	24	24	20	24	24	17	24	21	15	24	18	19	22	16	17	19	14	15
		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	23	24	24	20	24	23	17	24	21	15	23	18	13
			Exposed	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	24	24	21	24	24	17	24	20	15	24	17	20	21	15	17	18	13	15	16	18	13
		20-27	Interior	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	28	29	29	24	29	25	21	28	22	18	27	20	16
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	29	25	29	26	21	29	22	18	29	19	16	28	16	14	25	15	18	22	20	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	34	34	34	33	33	33	31	31	29	30	30	25	28	28	22	27	25	20
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	33	35	35	30	34	32	25	31	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	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	21	24	24	18	24	22	15	24	19	13	23	17	18	20	15	16
			Exposed	24	24	24	24	24	24	24	24	24	24	24	21	24	24	19	24	24	18	24	23	16	24	19	14	23	17	18	20	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		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	24	18	24	21	16	23	18	14	22	16	18	19	14	16	17	19	14
			Exposed	24	24	24	24	24	23	24	24	21	24	24	19	24	23	17	24	21	16	24	19	14	22	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	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	14	25	15	19	23	14	17
			Exposed	29	29	29	29	29	28	29	29	25	29	28	23	29	25	21	29	23	19	29	21	17	29	18	15	26	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	35	35	35	35	35	35	35	35	35	35	35	34	34	34	34	33	33	33	32	32	32	30	30	27	29	29	23	27	25	20	24	22	17	22	19	15	19	17	14
			Exposed	35	35	35	35	35	34	35	35	30	35	35	27	34	31	25	32	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	D	0-7	Interior	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	26	26	23	26	26	21	26	25	17	26	21	15	25	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	26	26	25	26	26	22	26	26	20	26	25	18	26	23	16	26	21	15	26	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	26	26	26	26	26	26	26	26	26	26	26	24	26	26	22	26	26	20	26	25	18	26	21	15	24	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	26	26	22	26	26	19	26	24	17	26	21	16	26	19	14	24	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	31	31	31	31	31	31	31	31	31	31	31	29	31	31	26	31	29	24	31	27	22	30	22	19	29	19	16	27	17	14	25	15	18	22	19	16	19	17	14
			Exposed	31	31	26	31	28	23	31	25	21	31	23	19	31	21	17	31	19	16	30	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	37	37	37	37	37	37	36	36	36	35	35	35	34	34	32	33	33	29	32	32	26	30	28	22	27	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	37	37	32	37	36	28	36	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
70	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	17	20	20	15
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		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	21	21	21	21	21	21	20	21	21	17	21	21	15	21	18	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	20	15	21	17	20	21	15	17	18	13	15	16	18	~~13~~
		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	24	25	25	21	25	22	18	24	20	16
			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	22	18	25	19	16	25	16	14	25	15	18	22	20	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	30	30	30	28	28	28	27	27	25	26	26	22	25	25	20
			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	30	27	22	27	24	19	23	21	16	20	18	14	18	16	19
	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	18	20	20	15	20	19	13	20	17	18	20	15	16
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		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	18	21	21	16	21	18	14	20	16	18	19	14	16	17	19	14
			Exposed	21	21	21	21	21	21	21	21	21	21	21	19	21	21	17	21	21	16	21	19	14	21	16	18	19	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	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	22	25	23	19	24	20	16	24	17	14	23	15	19	22	14	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	25	23	19	25	21	17	25	18	15	25	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	29	29	29	28	28	27	26	26	23	25	25	20	24	22	17	22	19	15	19	17	14
			Exposed	31	31	31	31	31	31	31	31	30	31	31	27	31	31	25	30	29	23	29	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~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	21	22	22	17	22	21	15	22	18	20	22	16	17	19	14	15	17	19	~~13~~
			Exposed	22	22	22	22	22	22	22	22	20	22	22	18	22	22	16	22	21	15	22	19	13	22	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		7-20	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	23	23	20	23	23	18	23	21	15	22	18	20	21	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	23	23	22	23	23	19	23	23	17	23	21	16	23	19	14	23	18	20	22	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	24	28	27	22	27	22	19	26	19	16	25	17	14	24	15	18	22	19	16	19	17	14
			Exposed	28	28	26	28	28	23	28	25	21	28	23	19	28	21	17	28	19	16	28	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	33	33	33	33	33	33	33	33	33	32	32	32	31	31	31	30	30	29	29	29	26	28	28	22	26	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	33	33	32	33	33	28	33	32	25	32	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
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	17	18	18	15
			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	17	18	18	15	18	18	19	18	16	17	18	14	15
		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	18	18	18	18	18	18	17	18	18	15	18	18	13
			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	15	18	17	20	18	15	17	18	13	15	16	18	~~13~~
		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	22	22	22	22	22	22	21	22	22	18	22	20	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	22	18	22	19	16	22	16	14	22	15	18	22	20	16
		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	28	27	27	27	26	26	26	25	25	25	24	24	22	23	23	20
			Exposed	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	27	27	22	26	24	19	23	21	16	20	18	14	18	16	19
	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	15	18	18	13	18	17	18	18	15	16
			Exposed	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	17	18	18	14	15	17	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		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	16	18	18	14	18	16	18	18	14	16	17	19	14
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	16	18	18	14	16	17	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	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	19	22	22	19	22	20	16	22	17	14	21	15	19	20	14	17
			Exposed	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	18	15	22	15	19	22	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	27	27	25	25	25	24	24	23	23	23	20	22	22	17	21	19	15	19	17	14
			Exposed	28	28	28	28	28	28	28	28	28	28	28	27	28	28	25	27	27	23	27	26	21	25	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	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	15	20	18	20	20	16	17	19	14	15	17	19	~~13~~			
			Exposed	20	20	20	20	20	20	20	20	20	20	18	20	20	16	20	20	15	20	19	13	20	16	17	19	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9	
		7-20	Interior	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	18	20	20	15	17	18	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	20	20	20	20	20	19	20	20	17	20	20	16	20	19	14	20	18	20	20	16	18	19	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		20-27	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	25	25	22	25	22	19	24	19	16	23	17	14	22	15	18	21	19	16	19	17	14
			Exposed	25	25	25	25	25	23	25	25	21	25	23	19	25	21	17	25	19	16	25	17	14	25	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	31	31	31	31	31	31	30	30	30	29	29	29	29	29	29	28	28	28	27	27	26	26	26	22	24	24	19	23	21	17	20	18	14	18	16	19	16	14	17
			Exposed	31	31	31	31	31	28	30	30	25	29	29	23	29	26	21	27	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~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 7-22	II	30 ft	Ss = 3.00	23 sq.ft	PORTRAIT	CROSS-SLOPE	NXT	NXT COMBO	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	15
			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	19	16	16	17	16	14	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	15	16	16	13
			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	15	16	16	20	16	15	17	16	13	15	16	18	~~13~~
		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	18	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	18	20	19	16	20	16	14	20	15	18	20	20	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	24	24	24	23	23	23	22	22	22	21	21	20
			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	22	24	24	19	23	21	16	20	18	14	18	16	19
	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	15	16	16	13	16	16	18	16	15	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	18	16	14	15	16	19	~~13~~	15	17	~~12~~	13	15	~~10~~
		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	14	16	16	18	16	14	16	16	19	14
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	18	16	14	16	16	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		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	19	20	20	16	20	17	14	19	15	19	19	14	17
			Exposed	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	18	15	20	15	19	20	20	16	19	17	14	17	15	~~13~~	15	~~14~~	~~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	24	24	24	23	23	23	22	22	20	21	21	17	20	19	15	19	17	14
			Exposed	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	24	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	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	17	18	18	15	18	18	20	18	16	17	18	14	15	17	19	~~13~~
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	16	18	18	15	18	18	13	18	16	17	18	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		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	15	18	18	20	18	15	17	17	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	18	18	18	18	18	18	18	18	17	18	18	16	18	18	14	18	18	20	18	16	18	18	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		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	19	22	19	16	21	17	14	20	15	18	20	19	16	19	17	14
			Exposed	22	22	22	22	22	22	22	22	21	22	22	19	22	21	17	22	19	16	22	17	14	22	15	18	21	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	28	28	28	28	28	28	28	28	28	27	27	27	26	26	26	26	26	26	25	25	25	24	24	22	23	23	19	21	21	17	20	18	14	18	16	19	16	14	17
			Exposed	28	28	28	28	28	28	28	28	25	27	27	23	26	26	21	26	24	19	24	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~11~~
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	19	14	14	17	14	14	15
		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	13
			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	20	15	15	17	15	13	15	15	18	~~13~~
		20-27	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	16
			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	16	14	18	15	18	18	20	16
		27-45	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	22	22	22	22	22	22	21	21	21	20	20	20
			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	22	22	22	19	22	21	16	20	18	14	18	16	19
	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	13	14	14	18	14	14	16
			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	18	14	14	15	14	19	~~13~~	14	17	~~12~~	13	15	~~10~~
		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	14	15	15	18	15	14	16	15	19	14
			Exposed	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	15	15	18	15	14	16	15	18	~~14~~	14	16	~~12~~	19	14	~~10~~	17	~~12~~	9
		20-27	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	16	18	17	14	18	15	19	17	14	17
			Exposed	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	18	18	15	18	15	19	18	20	16	18	17	14	17	15	~~13~~	15	~~14~~	~~11~~
		27-45	Interior	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	22	22	22	21	21	21	20	20	20	19	19	17	18	18	15	18	17	14
			Exposed	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	21	22	22	18	21	19	15	18	16	20	16	14	17	14	19	15	19	17	~~13~~
	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	15	16	16	20	16	16	17	16	14	15	16	19	~~13~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	17	16	14	15	16	18	~~13~~	14	16	~~11~~	19	~~14~~	~~10~~	17	~~12~~	9
		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	15	16	16	20	16	15	17	16	13	15	16	18	~~13~~	14	16	~~12~~
			Exposed	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	16	16	20	16	16	18	16	14	15	16	18	~~13~~	14	15	~~11~~	18	~~13~~	~~10~~	16	~~12~~	9	14	~~10~~	8
		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	19	20	19	16	20	17	14	19	15	18	18	19	16	18	17	14
			Exposed	20	20	20	20	20	20	20	20	20	20	20	19	20	20	17	20	19	16	20	17	14	20	15	18	20	19	16	19	16	~~14~~	16	14	~~12~~	14	~~13~~	~~10~~	19	~~11~~	9
		27-45	Interior	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	23	23	23	22	22	22	21	21	19	20	20	17	19	18	14	18	16	19	16	14	17
			Exposed	25	25	25	25	25	25	25	25	25	25	25	23	25	25	21	24	24	19	23	22	17	21	18	15	18	16	19	15	14	16	13	18	14	18	16	~~13~~	16	14	~~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 7-22	II	30 ft	Ss = 3.00	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	101	101	101	101	101	101	101	101	97	101	101	92	101	101	88	101	98	84	101	94	81	101	87	60	93	81	51	87	63	44	82	55	39	68	48	34	59	43	30
			Exposed	101	101	88	101	96	83	101	92	77	101	87	61	97	84	56	93	80	51	89	66	46	83	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	102	102	102	102	102	100	102	102	94	102	102	89	102	99	84	102	94	80	102	90	62	98	82	53	90	61	45	83	53	39	63	46	34	56	41	30	49	36	27
			Exposed	102	99	84	102	93	80	102	88	60	99	83	54	94	75	49	89	60	45	85	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	102	102	102	102	102	102	102	102	102	102	102	99	102	102	94	102	99	89	102	94	85	102	86	64	102	79	55	94	57	47	88	50	41	83	44	36	71	39	32
			Exposed	102	102	94	102	97	88	102	92	83	102	87	65	102	83	59	101	65	54	96	60	49	89	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	103	103	103	103	103	103	103	103	103	103	103	103	103	103	101	103	103	96	103	102	92	103	94	85	95	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	103	103	101	103	103	95	103	100	90	103	95	85	99	90	82	94	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	101	101	90	101	99	85	101	94	81	101	90	65	100	86	59	95	82	53	91	78	49	85	58	41	77	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	100	86	58	94	81	52	90	68	47	85	60	42	82	54	38	74	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	102	102	87	102	96	82	102	90	63	102	86	57	97	81	52	92	64	47	87	58	43	80	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	96	81	52	90	62	46	85	56	41	81	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	102	102	97	102	101	91	102	95	86	102	90	81	102	85	63	102	81	57	99	63	52	91	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	102	85	62	102	80	56	97	60	50	92	55	45	88	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	103	103	103	103	103	98	103	103	93	103	97	88	103	93	84	97	89	80	92	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	102	93	84	96	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	101	96	83	101	91	70	101	86	60	96	83	54	91	77	49	88	63	44	84	58	41	70	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	91	76	49	87	61	43	82	55	39	75	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	102	92	70	102	87	59	97	82	53	92	64	47	87	58	43	83	53	39	80	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	87	58	43	82	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	102	97	87	102	91	82	102	86	64	102	81	57	99	63	52	94	57	47	90	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	99	63	52	93	56	46	89	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	103	103	94	103	99	89	103	94	84	98	89	80	92	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	92	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
10	B	0-7	Interior	95	95	95	95	95	95	95	95	95	95	95	92	95	95	88	95	95	84	95	94	81	95	87	60	93	81	51	87	63	44	82	55	39	68	48	34	59	43	30
			Exposed	95	95	88	95	95	83	95	92	77	95	87	61	95	84	56	93	80	51	89	66	46	83	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	95	95	95	95	95	95	95	95	94	95	95	89	95	95	84	95	94	80	95	90	62	95	82	53	90	61	45	83	53	39	63	46	34	56	41	30	49	36	27
			Exposed	95	95	84	95	93	80	95	88	60	95	83	54	94	75	49	89	60	45	85	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	99	99	99	99	99	99	99	99	99	99	99	99	99	99	94	99	99	89	99	94	85	99	86	64	99	79	55	94	57	47	88	50	41	83	44	36	71	39	32
			Exposed	99	99	94	99	97	88	99	92	83	99	87	65	99	83	59	99	65	54	96	60	49	89	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	102	102	102	102	102	102	102	102	102	102	102	102	102	102	101	102	102	96	102	102	92	102	94	85	95	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	102	102	101	102	102	95	102	100	90	102	95	85	99	90	82	94	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	95	95	90	95	95	85	95	94	81	95	90	65	95	86	59	95	82	53	91	78	49	85	58	41	77	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	95	86	58	94	81	52	90	68	47	85	60	42	82	54	38	74	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	95	95	87	95	95	82	95	90	63	95	86	57	95	81	52	92	64	47	87	58	43	80	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	95	81	52	90	62	46	85	56	41	81	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	99	99	97	99	99	91	99	95	86	99	90	81	99	85	63	99	81	57	99	63	52	91	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	99	85	62	99	80	56	97	60	50	92	55	45	88	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	102	102	102	102	102	98	102	102	93	102	97	88	102	93	84	97	89	80	92	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	102	93	84	96	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	95	95	83	95	91	70	101	86	60	95	83	54	91	77	49	88	63	44	84	58	41	70	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	91	76	49	87	61	43	82	55	39	75	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	95	92	70	95	87	59	95	82	53	92	64	47	87	58	43	83	53	39	80	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	87	58	43	82	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	100	97	87	100	91	82	100	86	64	100	81	57	99	63	52	94	57	47	90	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	99	63	52	93	56	46	89	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	102	102	94	102	99	89	102	94	84	98	89	80	92	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	92	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
20	B	0-7	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	81	85	85	60	85	81	51	85	63	44	82	55	39	68	48	34	59	43	30
			Exposed	85	85	85	85	85	83	85	85	77	85	85	61	85	84	56	85	80	51	85	66	46	83	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	85	85	62	85	82	53	85	61	45	83	53	39	63	46	34	56	41	30	49	36	27
			Exposed	85	85	84	85	85	80	85	85	60	85	83	54	85	75	49	85	60	45	85	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	89	92	92	85	92	86	64	92	79	55	92	57	47	88	50	41	83	44	36	71	39	32
			Exposed	92	92	92	92	92	88	92	92	83	92	87	65	92	83	59	92	65	54	92	60	49	89	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	92	95	94	85	95	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	95	95	95	95	95	95	95	95	90	95	95	85	95	90	82	94	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	85	85	85	85	85	85	85	85	81	85	85	65	85	85	59	85	82	53	85	78	49	85	58	41	77	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	85	85	58	85	81	52	85	68	47	85	60	42	82	54	38	74	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	85	85	85	85	85	82	85	85	63	85	85	57	85	81	52	85	64	47	85	58	43	80	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	85	81	52	85	62	46	85	56	41	81	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	92	92	92	92	92	91	92	92	86	92	90	81	92	85	63	92	81	57	92	63	52	91	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	92	85	62	92	80	56	92	60	50	92	55	45	88	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	95	95	95	95	95	95	95	95	93	95	95	88	95	93	84	95	89	80	92	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	95	93	84	95	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	85	85	83	85	85	70	85	85	60	85	83	54	85	77	49	85	63	44	84	58	41	70	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	85	76	49	85	61	43	82	55	39	75	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	85	85	70	85	85	59	85	82	53	85	64	47	85	58	43	83	53	39	80	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	85	58	43	82	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	93	93	87	93	91	82	93	86	64	93	81	57	93	63	52	93	57	47	90	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	93	63	52	93	56	46	89	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	96	96	94	96	96	89	96	94	84	96	89	80	92	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	92	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	60	69	69	51	69	63	44	69	55	39	68	48	34	59	43	30
			Exposed	69	69	69	69	69	69	69	69	69	69	69	61	69	69	56	69	69	51	69	66	46	69	55	39	65	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	62	69	69	53	69	61	45	69	53	39	63	46	34	56	41	30	49	36	27
			Exposed	69	69	69	69	69	69	69	69	60	69	69	54	69	69	49	69	60	45	69	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	85	86	86	64	86	79	55	86	57	47	86	50	41	83	44	36	71	39	32
			Exposed	86	86	86	86	86	86	86	86	83	86	86	65	86	83	59	86	65	54	86	60	49	86	50	42	82	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		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	85	90	87	66	88	81	57	82	62	50	61	55	44	55	49	39
			Exposed	90	90	90	90	90	90	90	90	90	90	90	85	90	90	82	90	86	65	90	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	69	69	69	69	69	69	69	69	69	69	69	65	69	69	59	69	69	53	69	69	49	69	58	41	69	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	69	69	58	69	69	52	69	68	47	69	60	42	69	54	38	69	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	69	69	69	69	69	69	69	69	63	69	69	57	69	69	52	69	64	47	69	58	43	69	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	69	69	52	69	62	46	69	56	41	69	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	86	86	86	86	86	86	86	86	86	86	86	81	86	85	63	86	81	57	86	63	52	86	53	44	84	46	38	76	40	33	59	35	29	52	30	25	46	27	34
			Exposed	86	85	62	86	80	56	86	60	50	86	55	45	86	49	41	84	45	37	81	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	90	90	90	90	90	90	90	90	90	90	90	88	90	90	84	90	89	80	90	85	62	85	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	90	90	84	90	88	76	90	83	60	86	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	69	69	69	69	69	69	69	69	60	69	69	54	69	69	49	69	63	44	69	58	41	69	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	69	69	49	69	61	43	69	55	39	69	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	69	69	69	69	69	59	69	69	53	69	64	47	69	58	43	69	53	39	69	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	69	58	43	69	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	88	88	87	88	88	82	88	86	64	88	81	57	88	63	52	88	57	47	88	52	43	83	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	88	63	52	88	56	46	88	50	42	84	45	38	81	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	91	91	91	91	91	89	91	91	84	91	89	80	91	85	62	88	81	57	84	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	91	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
40	B	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	60	64	64	51	64	63	44	64	55	39	64	48	34	59	43	30
			Exposed	64	64	64	64	64	64	64	64	64	64	64	61	64	64	56	64	64	51	64	64	46	64	55	39	64	47	33	56	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	62	65	65	53	65	61	45	65	53	39	63	46	34	56	41	30	49	36	27
			Exposed	65	65	65	65	65	65	65	65	60	65	65	54	65	65	49	65	60	45	65	55	41	64	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	64	74	74	55	74	57	47	74	50	41	72	44	36	68	39	32
			Exposed	74	74	74	74	74	74	74	74	74	74	74	65	74	74	59	74	65	54	74	60	49	74	50	42	74	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		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	85	85	85	66	80	80	57	74	62	50	61	55	44	55	49	39
			Exposed	85	85	85	85	85	85	85	85	85	85	85	85	85	85	82	85	85	65	85	83	59	82	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	64	64	64	64	64	64	64	64	64	64	64	64	64	64	59	64	64	53	64	64	49	64	58	41	64	50	35	59	43	31	52	38	27	46	33	36	41	30	32
			Exposed	64	64	58	64	64	52	64	64	47	64	60	42	64	54	38	64	49	35	62	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	65	65	65	65	65	65	65	65	63	65	65	57	65	65	52	65	64	47	65	58	43	65	49	36	58	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	65	65	52	65	62	46	65	56	41	65	50	37	63	46	34	57	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	74	74	74	74	74	74	74	74	74	74	74	74	74	74	63	74	74	57	74	63	52	74	53	44	73	46	38	68	40	33	59	35	29	52	30	25	46	27	34
			Exposed	74	74	62	74	74	56	74	60	50	74	55	45	74	49	41	74	45	37	74	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	85	85	85	85	85	85	85	85	85	85	85	85	85	85	84	85	85	80	84	84	62	77	72	53	64	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	85	85	84	85	85	76	85	83	60	85	79	54	81	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	68	68	68	68	68	68	68	68	60	68	68	54	68	68	49	68	63	44	68	58	41	68	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	68	68	49	68	61	43	68	55	39	68	50	35	62	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	69	69	69	69	69	59	69	69	53	69	64	47	69	58	43	69	53	39	69	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	69	58	43	69	52	38	64	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	79	79	79	79	79	79	79	79	64	79	79	57	79	63	52	79	57	47	79	52	43	78	44	37	65	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	79	63	52	79	56	46	79	50	42	79	45	38	79	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	87	87	87	87	87	87	87	87	84	87	87	80	87	85	62	85	81	57	82	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	87	85	62	87	80	56	82	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
50	B	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	44	55	55	39	55	48	34	55	43	30	55	43	30
			Exposed	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	51	55	55	46	55	55	39	55	47	33	55	41	29	49	36	25	43	32	34	38	28	30
		7-20	Interior	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	45	56	53	39	55	46	34	53	41	30	49	36	27
			Exposed	56	56	56	56	56	56	56	56	56	56	56	54	56	56	49	56	56	45	56	55	41	56	47	35	55	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	64	65	65	55	65	57	47	64	50	41	61	44	36	59	39	32
			Exposed	65	65	65	65	65	65	65	65	65	65	65	65	65	65	59	65	65	54	65	60	49	65	50	42	65	43	36	64	37	31	56	33	27	49	29	24	44	26	32
		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	73	73	66	68	68	57	64	62	50	61	55	44	55	49	39
			Exposed	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	65	76	76	59	76	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	C	0-7	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	53	55	55	49	55	55	41	55	50	35	55	43	31	52	38	27	46	33	36	41	30	32
			Exposed	55	55	55	55	55	52	55	55	47	55	55	42	55	54	38	55	49	35	55	45	32	52	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	21
		7-20	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	52	56	56	47	56	56	43	56	49	36	54	42	31	50	37	27	44	32	24	38	28	32	34	25	28
			Exposed	56	56	52	56	56	46	56	56	41	56	50	37	56	46	34	56	42	31	52	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	65	65	65	65	65	65	65	65	65	65	65	65	65	65	63	65	65	57	65	63	52	65	53	44	62	46	38	59	40	33	57	35	29	52	30	25	46	27	34
			Exposed	65	65	62	65	65	56	65	60	50	65	55	45	65	49	41	65	45	37	65	41	34	60	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	74	74	74	71	71	62	66	66	53	62	57	45	55	49	39	48	43	34	43	38	30	38	34	27
			Exposed	76	76	76	76	76	76	76	76	60	76	76	54	76	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	59	59	59	59	59	59	59	59	59	59	59	54	59	59	49	59	59	44	59	58	41	59	49	34	57	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	59	59	49	59	59	43	59	55	39	59	50	35	59	45	32	56	41	29	52	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	60	60	60	60	60	59	60	60	53	60	60	47	60	58	43	60	53	39	60	49	36	56	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	60	58	43	60	52	38	60	46	34	58	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	69	69	69	69	69	69	69	69	64	69	69	57	69	63	52	69	57	47	69	52	43	66	44	37	62	38	31	56	33	27	49	29	24	43	25	32	38	34	28
			Exposed	69	63	52	69	56	46	69	50	42	69	45	38	69	41	34	64	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	80	80	80	80	80	80	80	80	80	80	80	80	77	77	62	74	74	57	70	67	52	62	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	80	80	62	80	80	56	80	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	46	46	46	46	46	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	39	46	46	34	46	43	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	33	46	41	29	46	36	25	43	32	34	38	28	30
		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	45	47	47	39	47	46	34	47	41	30	46	36	27
			Exposed	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	45	47	47	41	47	47	35	47	40	30	47	35	26	41	30	34	36	27	30	32	24	27
		20-27	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	55	57	57	47	56	50	41	55	44	36	53	39	32
			Exposed	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	54	57	57	49	57	50	42	57	43	36	57	37	31	56	33	27	49	29	24	44	26	32
		27-45	Interior	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	67	67	64	64	64	61	61	57	58	58	50	55	55	44	53	49	39
			Exposed	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	65	68	68	59	67	63	50	60	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	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	41	46	46	35	46	43	31	46	38	27	46	33	36	41	30	32
			Exposed	46	46	46	46	46	46	46	46	46	46	42	46	46	38	46	46	35	46	45	32	46	38	27	45	33	35	39	28	30	34	25	27	30	33	23	27	29	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	47	36	47	42	31	46	37	27	44	32	24	38	28	32	34	25	28
			Exposed	47	47	47	47	47	46	47	47	41	47	47	37	47	46	34	47	42	31	47	38	28	44	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		20-27	Interior	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	52	57	53	44	55	46	38	53	40	33	51	35	29	49	30	25	46	27	34
			Exposed	57	57	57	57	57	56	57	57	50	57	55	45	57	49	41	57	45	37	57	41	34	57	35	29	51	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	68	68	68	68	68	68	68	68	68	68	68	68	67	67	67	65	65	65	63	63	62	59	59	53	56	56	45	53	49	39	48	43	34	43	38	30	38	34	27
			Exposed	68	68	68	68	68	68	68	68	60	68	68	54	67	62	49	63	56	45	58	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	51	51	44	51	51	41	51	49	34	51	42	29	49	36	26	43	31	34	38	28	30	34	25	26
			Exposed	51	51	49	51	51	43	51	51	39	51	50	35	51	45	32	51	41	29	51	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	52	52	52	52	52	52	52	52	52	52	52	47	52	52	43	52	52	39	52	49	36	51	41	30	48	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	52	52	43	52	52	38	52	46	34	52	42	31	52	38	28	48	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	61	61	61	61	61	61	61	61	61	61	61	57	61	61	52	61	57	47	61	52	43	59	44	37	56	38	31	54	33	27	49	29	24	43	25	32	38	34	28
			Exposed	61	61	52	61	56	46	61	50	42	61	45	38	61	41	34	61	38	31	59	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	72	72	72	72	72	72	72	72	72	70	70	70	67	67	62	65	65	57	63	63	52	59	56	44	53	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	72	72	62	72	72	56	72	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
70	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	39	40	40	34	40	40	30
			Exposed	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	40	40	29	40	36	25	40	32	34	38	28	30
		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	41	41	41	41	41	41	39	41	41	34	41	41	30	41	36	27
			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	40	30	41	35	26	41	30	34	36	27	30	32	24	27
		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	50	50	50	50	50	50	47	50	50	41	49	44	36	48	39	32
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	50	42	50	43	36	50	37	31	50	33	27	49	29	24	44	26	32
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	58	58	58	56	56	56	53	53	50	51	51	44	49	49	39
			Exposed	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	59	60	60	50	58	54	43	52	47	37	46	41	33	40	36	29	36	32	25
	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	35	40	40	31	40	38	27	40	33	36	40	30	32
			Exposed	40	40	40	40	40	40	40	40	40	40	40	40	40	40	38	40	40	35	40	40	32	40	38	27	40	33	35	39	28	30	34	25	27	30	33	23	27	29	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	36	41	41	31	41	37	27	40	32	24	38	28	32	34	25	28
			Exposed	41	41	41	41	41	41	41	41	41	41	41	37	41	41	34	41	41	31	41	38	28	41	32	24	38	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		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	46	38	48	40	33	46	35	29	45	30	25	43	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	50	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	59	59	57	57	57	54	54	53	52	52	45	49	49	39	46	43	34	43	38	30	38	34	27
			Exposed	61	61	61	61	61	61	61	61	60	61	61	54	60	60	49	59	56	45	57	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	0-7	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	34	44	42	29	44	36	26	43	31	34	38	28	30	34	25	26
			Exposed	44	44	44	44	44	43	44	44	39	44	44	35	44	44	32	44	41	29	44	38	27	44	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	45	45	39	45	45	36	45	41	30	44	35	26	42	30	34	36	27	30	32	23	26	28	32	23
			Exposed	45	45	43	45	45	38	45	45	34	45	42	31	45	38	28	45	35	26	43	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	55	55	55	55	55	55	55	55	55	55	55	55	55	55	52	55	55	47	55	52	43	53	44	37	51	38	31	49	33	27	47	29	24	43	25	32	38	34	28
			Exposed	55	55	52	55	55	46	55	50	42	55	45	38	55	41	34	55	38	31	55	34	28	50	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	66	66	66	66	66	66	65	65	65	63	63	63	61	61	61	59	59	57	57	57	52	54	54	44	51	48	38	46	41	33	40	36	29	36	32	25	32	28	34
			Exposed	66	66	62	66	66	56	65	63	50	63	57	45	58	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
80	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	34	35	35	30
			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	33	35	35	29	35	35	25	35	32	34	35	28	30
		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	36	36	36	36	36	36	34	36	36	30	36	36	27
			Exposed	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	35	26	36	30	34	36	27	30	32	24	27
		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	44	44	44	44	44	44	41	44	44	36	44	39	32
			Exposed	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	36	44	37	31	44	33	27	44	29	24	44	26	32
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	55	53	53	53	51	51	51	49	49	49	47	47	44	45	45	39
			Exposed	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	55	55	50	53	53	43	51	47	37	46	41	33	40	36	29	36	32	25
	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	31	35	35	27	35	33	36	35	30	32
			Exposed	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	35	35	28	30	34	25	27	30	33	23	27	29	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	36	27	36	32	24	35	28	32	34	25	28
			Exposed	36	36	36	36	36	36	36	36	36	36	36	36	36	36	34	36	36	31	36	36	28	36	32	24	36	28	31	33	24	27	29	32	24	25	28	21	34	25	18
		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	38	44	40	33	42	35	29	41	30	25	40	27	34
			Exposed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	41	44	44	37	44	41	34	44	35	29	44	30	25	44	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	56	56	56	56	56	56	56	56	56	56	56	55	55	55	55	54	54	54	52	52	52	50	50	50	48	48	45	45	45	39	43	43	34	41	38	30	38	34	27
			Exposed	56	56	56	56	56	56	56	56	56	56	56	54	55	55	49	54	54	45	52	52	41	49	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	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	34	39	39	29	39	36	26	39	31	34	38	28	30	34	25	26
			Exposed	39	39	39	39	39	39	39	39	39	39	39	35	39	39	32	39	39	29	39	38	27	39	32	34	37	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	Interior	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	35	26	39	30	34	36	27	30	32	23	26	28	32	23
			Exposed	39	39	39	39	39	38	39	39	34	39	39	31	39	38	28	39	35	26	39	32	24	37	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	49	49	43	48	44	37	47	38	31	45	33	27	43	29	24	41	25	32	38	34	28
			Exposed	49	49	49	49	49	46	49	49	42	49	45	38	49	41	34	49	38	31	49	34	28	48	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	60	60	60	60	60	60	59	59	59	58	58	58	56	56	56	55	55	55	53	53	52	50	50	44	47	47	38	45	41	33	40	36	29	36	32	25	32	28	34
			Exposed	60	60	60	60	60	56	59	59	50	58	57	45	56	52	41	52	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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

UNIRAC

ASCE 7-22	II	30 ft	Ss = 3.00	23 sq.ft	LANDSCAPE	CROSS-SLOPE	NXT	NXT COMBO	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	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
			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	29	31	31	25	31	31	34	31	28	30
		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	30	32	32	27
			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	30	32	32	26	32	30	34	32	27	30	32	24	27
		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	36	39	39	32
			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	36	39	37	31	39	33	27	39	29	24	39	26	32
		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	49	49	49	47	47	47	46	46	46	44	44	44	42	42	39
			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	49	49	43	47	47	37	46	41	33	40	36	29	36	32	25
	C	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	31	31	31	31	31	31	31	31	31	27	31	31	36	31	30	32
			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	31	35	31	28	30	31	25	27	30	33	23	27	29	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	32	24	32	28	32	31	25	28
			Exposed	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	24	32	28	31	32	24	27	29	32	24	25	28	21	34	25	18
		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	38	39	39	33	39	35	29	38	30	25	37	27	34
			Exposed	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	37	39	39	34	39	35	29	39	30	25	39	26	32	39	34	28	34	30	25	30	27	22
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	48	48	48	46	46	46	44	44	44	42	42	39	40	40	34	39	38	30	37	34	27
			Exposed	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	45	48	48	41	46	44	35	42	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	D	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	34	35	35	29	35	35	26	35	31	34	35	28	30	34	25	26
			Exposed	35	35	35	35	35	35	35	35	35	35	35	35	35	35	32	35	35	29	35	35	27	35	32	34	35	27	29	32	36	25	28	31	22	25	28	20	33	24	17
		7-20	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	30	34	34	27	30	32	23	26	28	32	23
			Exposed	35	35	35	35	35	35	35	35	34	35	35	31	35	35	28	35	35	26	35	32	24	35	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		20-27	Interior	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	44	37	43	38	31	42	33	27	40	29	24	39	25	32	37	34	28
			Exposed	44	44	44	44	44	44	44	44	42	44	44	38	44	41	34	44	38	31	44	34	28	44	29	24	42	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	55	55	55	55	55	55	55	55	55	53	53	53	52	52	52	51	51	51	49	49	49	47	47	44	44	44	38	42	41	33	40	36	29	36	32	25	32	28	34
			Exposed	55	55	55	55	55	55	55	55	50	53	53	45	52	52	41	51	47	37	48	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22
100	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	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	25	28	28	34	28	28	30
		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	27
			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	26	29	29	34	29	27	30	29	24	27
		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	36	36	36	36	36	36	36	36	36	32
			Exposed	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	31	36	33	27	36	29	24	36	26	32
		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	44	44	44	42	42	42	41	41	41	40	40	39
			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	43	44	44	37	42	41	33	40	36	29	36	32	25
	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	28	28	28	27	28	28	36	28	28	32
			Exposed	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	35	28	28	30	28	25	27	28	33	23	27	29	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	27	29	29	24	29	28	32	29	25	28
			Exposed	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	24	29	28	31	29	24	27	29	32	24	25	28	21	34	25	18
		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	33	36	35	29	35	30	25	34	27	34
			Exposed	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	26	32	36	34	28	34	30	25	30	27	22
		27-45	Interior	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	43	43	43	41	41	41	40	40	39	38	38	34	36	36	30	35	34	27
			Exposed	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	41	43	43	35	41	38	30	36	33	26	32	28	34	28	25	30	25	34	27
	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	29	31	31	29	31	31	26	31	31	34	31	28	30	31	25	26
			Exposed	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	27	31	31	34	31	27	29	31	36	25	28	31	22	25	28	20	33	24	17
		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	30	32	32	26	32	30	34	32	27	30	31	23	26	28	32	23
			Exposed	32	32	32	32	32	32	32	32	32	32	32	31	32	32	28	32	32	26	32	32	24	32	27	30	32	35	26	27	30	22	24	26	20	32	23	17	28	21	15
		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	37	39	38	31	39	33	27	37	29	24	36	25	32	35	34	28
			Exposed	39	39	39	39	39	39	39	39	39	39	39	38	39	39	34	39	38	31	39	34	28	39	29	24	39	25	31	37	33	27	32	29	24	28	25	21	25	22	19
		27-45	Interior	50	50	50	50	50	50	50	50	50	50	50	50	48	48	48	47	47	47	46	46	46	44	44	44	42	42	38	40	40	33	38	36	29	36	32	25	32	28	34
			Exposed	50	50	50	50	50	50	50	50	50	50	50	45	48	48	41	47	47	37	46	43	34	41	36	29	35	31	25	30	27	33	26	24	29	23	32	25	31	28	22

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

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

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