

Design Criteria for Span Tables:

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

Building Assumptions

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

Wind Design Assumptions

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

Snow Design Assumptions

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

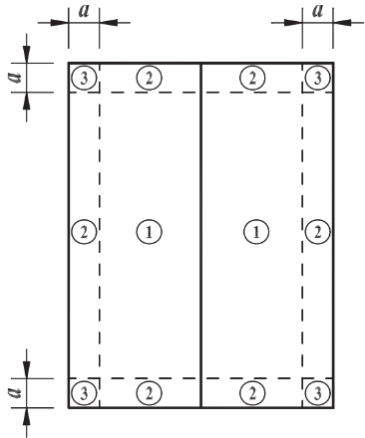
Seismic Design Assumptions

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

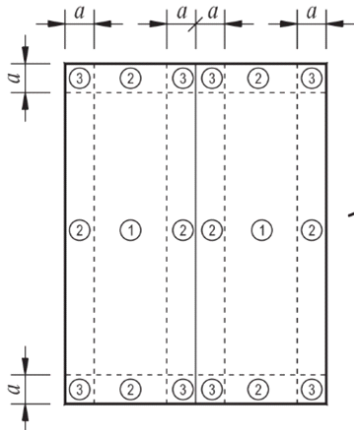
Array Assumptions

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

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

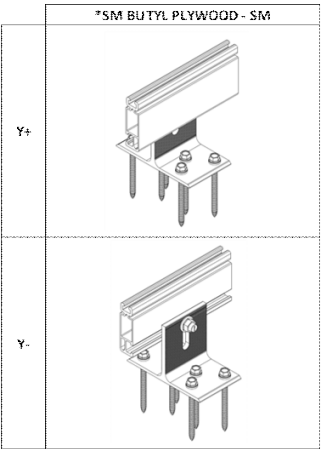


Gable Roofs $\theta \leq 7^\circ$



Gable Roofs $7^\circ < \theta \leq 45^\circ$

Rails can be installed in these possible orientations.





30 ft
Roof Height

S_s = 1.25
Seismic

18.66 sq.ft

ORIENTATION

CROSS-SLOPE

Rail Direction

SM
Rail Type

PRO SERIES

SM BUTYL Plywood

Attachment

SPAN TABLES

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																															
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			Roof Wind Zone																																															
			1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3									
0	B	0-7	46	46	30	46	43	26	46	38	23	46	34	21	46	31	19	46	28	17	46	25	16	41	21	13	35	18	11	30	16	10	26	14	8	23	12	7	20	11	7	10								
		7-27	47	47	32	47	46	28	47	40	25	47	36	23	47	33	20	47	30	19	47	27	17	46	23	14	39	19	12	33	17	11	29	14	9	25	13	8	22	11	7									
		27-45	48	48	48	48	48	48	48	48	48	48	48	48	47	47	47	47	43	42	40	39	39	35	32	32	31	28	28	27	24	24	24	21	21	22	18	18	20	16	16									
	C	0-7	46	33	20	46	29	18	46	26	16	46	24	15	41	21	13	37	19	12	34	18	11	28	15	9	24	13	8	21	11	7	18	9	9	16	8	8	14	7	7	8								
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C		0-7	33	33	20	33	29	18	33	26	16	33	24	15	33	21	13	33	19	12	33	18	11	28	1																									

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II

30 ft
Roof Height

$$S_s = 1.25$$

Seismic

18.66 sq.ft

LANDSCAPE

CROSS-SLOPE
Rail Direction

SM
Rail Type

PRO SERIES
Clamp

SM BUTYL Plywood

SPAN TABLES

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Basic Wind Speed (mph)																																						
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30 ft
Roof Height

Ss = 3.00
Seismic

18.66 sq.ft

ORIENTATION

CROSS-SLOPE
Rail Direction

SM
Rail Type

PRO SERIES

SM BUTYL Plywood

Attachment

SPAN TABLES

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II

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Roof Height

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18.66 sq.ft
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LANDSCAPE

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30 ft
Roof Height

18.66 sq.ft
Module Area

CROSS-SLOPE
Rail Direction

UAF
Clamp

SM BUTYL Plywood

Attachment

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

[illegible]

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11

30 ft

Roof Height

S_s = 1.25
Seismic

22.78 sq.ft

ORIENTATION

CROSS-SLOP
Rail Direction

SM
Rail Type

UAF

Clamp

SM BUTYL Plywood
Attachment

SPAN TABLES

[illegible]

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11

30 ft
Roof Height

Ss = 3.00
Seismic

22.78 sq.ft
Module Area

ORIENTATION

CROSS-SLOPE
Rail Direction

SM
Rail Type

UAF

Clamp

SM BUTYL Plywood

SPAN TABLES

[illegible]

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11

30 ft
Roof Height

Ss = 3.00
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22.78 sq.ft

LANDSCAPE

CROSS-SLOPE
Rail Direction

SM
Rail Type

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SPAN TABLES

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	7-27	25	25	25	25	25	25	25	25	24	25	25	22	25	25	20	25	25	18	25	25	16	24	22	14	23	19	12	22	16	16	21	14	14	21	12	12	20	17	11	
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