

Design Criteria for Span Tables:

Values in the maximum allowable 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: 30ft
- Roof Pitch: 0°-45°
- Site Elevation: 0 ft

Wind Design Assumptions

- Wind loads used are based on ASCE 7-16 Sec 29.4.4 with Provisions from SEAOC PV2-2017
- Exposure Category B, C, or D
- Basic Wind Speed = 90 – 180 mph
- Level terrain. Topographic factor, $k_{zt} = 1.0$
- $\gamma_E = 1.0$ for 'Interior' spans, $\gamma_E = 1.5$ for 'Exposed' spans (ASCE 7-16, Fig. 29.4-7)

Snow Design Assumptions

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

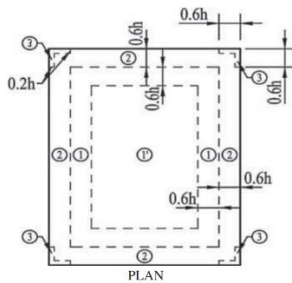
Seismic Design Assumptions

- 0.2-s Spectral Response Acceleration, $S_S \leq 3$
- $S_5 = 1.25$, 3 per criteria shown on individual span tables sheets.
- $S_1 = 0.5$
- Seismic site class D-Default

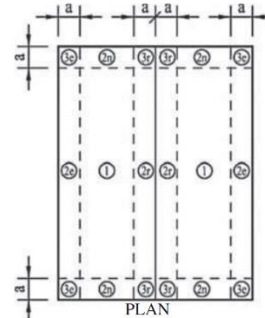
Span Tables

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.
- 'Exposed' spans as defined in ASCE 7-16 sec. 29.4.4 shall be used when any part of an exposed module or panel as is attributed to that span.
- 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 7-16, Fig. 30.3-2A to 30.3-2D



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



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

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

Roof Tilt 0° - 7°

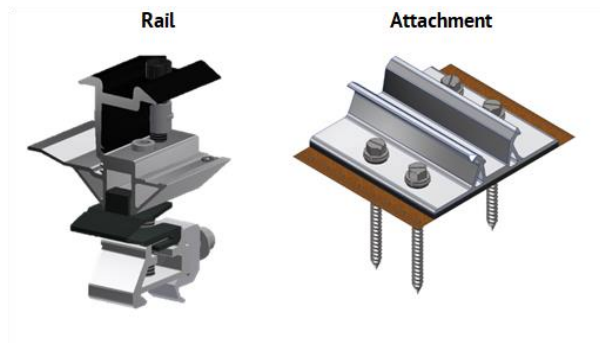
- Roof Zone 1 = 1
- Roof Zone 2 = 2
- Roof Zone 3 = 3

Roof Tilt 7° - 27°

- Roof Zone 1 = 1, 2e
- Roof Zone 2 = 2n, 2r, 3e
- Roof Zone 3 = 3r

Roof Tilt 27° - 45°

- Roof Zone 1 = 1, 2e, 2r
- Roof Zone 2 = 2n, 3r
- Roof Zone 3 = 3e



Micro Rail - DtD OSB



ASCE 7-16
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 1.25
Seismic

19 sq.ft
Module Area

PORTRAIT
Orientation

CROSS-SLOPE
Rail Direction

Micro Rail
Rail Type

SFM
Clamp

SFM DID-OSB
Attachment

SPAN TABLES

Maximum Allowable 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									
0	B	0-7	Interior	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	4	6	5	3						
			Exposed	14	14	10	14	12	8	14	11	8	14	10	7	12	9	6	11	8	5	10	7	5	8	6	4	7	5	6	3	6	4	3	5	4	3	5	3	2	4	3	2					
		7-20	Interior	14	14	13	14	14	12	14	13	10	14	11	9	14	10	8	14	9	8	13	8	7	11	7	6	10	7	5	6	5	8	5	4	7	4	4	6	4	3	5	3	3				
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		7-20	Interior	10	10	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	8	10	9	8	10	7	6	9	6	5	8	5	4	7	4	4	6	4	3	5	3	3	
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27-45	Interior																																															



ASCE 7-16
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 1.25
Seismic

23 sq.ft
Module Area

LANDSCAPE
Orientation

CROSS-SLOPE
Rail Direction

Micro Rail
Rail Type

SFM
Clamp

SFM DID-05B
Attachment

SPAN TABLES

Maximum Allowable 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																
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		7-20	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		
		20-27	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
			Exposed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12		
	27-45	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13			
		Exposed	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13				
	C	0-7	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9			
			Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		
		7-20	Interior	9	9	9																																																			



ASCE 7-16
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 3.00
Seismic

19 sq.ft
Module Area

PORTRAIT
Orientation

CROSS-SLOPE
Rail Direction

Micro Rail
Rail Type

SFM
Clamp

SFM DID-05B
Attachment

SPAN TABLES

Maximum Allowable 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																																																
0	B	0-7	Interior	14	14	14	14	14	13	14	14	12	14	14	11	14	14	10	14	13	9	14	11	8	13	10	7	11	8	6	10	7	5	8	6	4	7	5	4	6	5	3										
			Exposed	14	14	10	14	12	8	14	11	8	14	10	7	12	9	6	11	8	5	10	7	5	8	6	4	7	5	6	3	6	4	3	5	4	3	5	3	2	4	3	2									
		7-20	Interior	14	14	13	14	14	12	14	13	10	14	11	9	14	10	8	14	9	8	13	8	7	11	7	6	9	6	5	8	5	4	7	4	4	6	4	3	5	3	3										
			Exposed	14	10	8	14	9	7	13	8	7	11	7	6	10	7	5	9	6	5	8	5	4	7	4	4	6	4	3	5	3	3	4	2	4	3	2	2	3	2	2										
		20-27	Interior	14	14	14	14	14	13	14	14	11	14	14	10	14	13	8	14	11	8	14	10	7	14	9	6	13	7	5	11	6	4	10	5	4	8	5	3	7	4	3	6	3	2							
			Exposed	14	13	8	14	11	7	14	10	7	14	9	6	14	8	5	13	7	5	12	7	5	12	7	4	10	5	4	8	5	3	7	4	3	6	3	2	5	4	3	2	5	3	2						
	27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	11	14	14	10	14	13	9	12	11	7	10	9	6	9	8	5	9	6	4	7	6	3	5	4	6	4	3	6	5	3						
		Exposed	14	14	11	14	14	9	14	12	8	13	11	7	11	10	6	10	9	6	9	8	5	8	7	4	7	6	3	6	5	3	5	4	7	6	3	6	5	3	5	4	3	4	4	2	4	3	2			
	C	0-7	Interior	14	14	10	14	13	9	14	12	8	14	11	7	13	10	7	12	9	6	11	8	5	9	7	4	8	5	9	7	4	8	6	4	7	5	3	6	4	3	5	4	2	4	3	2					
			Exposed	13	9	7	12	8	6	11	7	5	9	7	5	8	6	4	8	5	4	7	5	3	6	4	3	5	3	2	4	3	2	4	3	2	4	2	2	3	2	4	2	1	3	2	1	2	2			
		7-20	Interior	14	11	9	14	10	8	14	9	7	12	8	6	11	7	6	10	6	5	9	6	5	8	5	4	6	4	3	6	3	3	5	3	2	4	3	2	4	3	2	4	3	2	4	2	2				
			Exposed	11	7	6	10	6	5	9	6	4	8	5	4	7	4	4	6	4	3	6	4	3	5	3	2	4	2	2	3	2	2	3	2	1	3	2	1	3	2	1	2	1	1	1	1	1	1			
		20-27	Interior	14	14	9	14	12	8	14	11	7	14	10	6	14	9	6	14	8	5	13	7	5	10	6	4	9	5	3	8	4	3	7	4	2	6	3	7	4	2	6	3	2	5	3	2	5	3	2		
			Exposed	14	9	6	13	8	5	12	7	4	11	6	4	10	5	4	9	5	3	8	4	3	7	4	2	5	3	2	5	3	2	4	2	1	4	2	1	4	2	1	3	2	1	3	2	1	1	1		
	27-45	Interior	14	14	12	14	14	10	14	13	9	14	12	8	12	11	7	11	10	6	10	9	6	8	7	5	7	6	4	6	5	3	5	3	5	3	5	3	5	3	5	4	2	4	2	4	2	4	2			
		Exposed	12	11	7	11	10	6	10	9	5	9	8	5	8	7	4	7	6	4	6	3	5	5	3	5	3	4	2	4	2	4	2	3	2	3	2	3	3	2	3	3	1	3	2	1	3	2	1			
	D	0-7	Interior	14	12	9	14	11	8	14	10	7	12	9	6	11	8	5	10	7	5	9	6	4	8	5	4	6	5	3	5	4	6	5	3	5	4	3	5	3	2	4	3	2	4	3	2	4	3	2		
			Exposed	11	8	5	10	7	5	9	6	4	8	6	4	7	5	3	6	4	3	6	4	3	5	3	2	4	3	2	4	3	2	3	2	2	3	2	1	3	2	1	2	1	2	1	1	1	1	1	1	
		7-20	Interior	14	9	7	13	8	7	11	7	6	10	6	5	9	6	5	8	5	4	8	5	4	6	4	3	5	3	3	5	3	2	4	3	2	4	2	2	3	2	4	2	2	3	2	2	1	2	1	1	
			Exposed	9	6	5	8	5	4	7	5	4	6	4	3	6	4	3	5	3	3	5	3	2	4	2	2	3	2	2	3	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	1	1	1	1		
		20-27	Interior	14	11	7	14	10	7	14	9	6	14	8	5	13	7	5	11	6	4	10	6	4	9	5	3	7	4	3	6	3	2	5	3	2	5	3	2	5	3	2	5	3	2	4	2	1	3	2	1	
			Exposed	13	7	5	11	6	4	10	6	4	9	5	3	8	4	3	7	4	2	5	3	2	5	3	2	4	2	1	3	2	1	3	2	1	3	2	1	3	2	1	3	1	3	1	1	1	1	1		
	27-45	Interior	14	14	10	14	12	8	13	11	7	11	10	6	10	9	6	9	6	5	8	7	4	7	6	4	6	5	3	5	4	3	4	2	4	2	4	3	4	2	4	2	4	3	2	3	3	2	3	2		
		Exposed	10	9	6	9	8	5	8	7	7	6	4	6	6	3	6	5	3	5	5	3	4	4	2	4	2	4	3	2	3	2	3	2	3	2	3	2	3	2	3	2	1	2	2	1	2	2	1			
10	B	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	10	7	10	8	6	10	7	5	8	6	4	7	5	4	6	5	3	6	4	3	5	4	2	6	5	3		
			Exposed	10	10	10	10	10	8	10	10	10	10	10	10	10	9	6	10	8	5	10	7	5	8	6	4	7	5	3	6	4	3	5	4	3	5	4	3	5	4	3	5	4	3	2	4	3	2			
		7-20	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	7	6	9	6	5	8	5	4	7	4	4	6	4	3	5	3	4	2	6	4	3	5	3	3
			Exposed	10	10	8	10	9	7	10	8	7	10	7	6	10	7	5	9	6	5	8	5	4	7	4	4	6	4	3	5	3	3	4	2	4	3	2	4	3	2	4	2	2	3	2	3	2	2	2		
		20-27	Interior	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	11	13	13	11	13	10	7	13	9	6	13	7	5	11	6	4	10	5	4	8	5	3	7	4	3	6	3	7	4	3	
			Exposed	13	13	8	13	11	7	13	10	7	13	9	6	13	8	5	13	7	5	12	7	4	10	5	4	8	5	3	7	4	3	6	3	2	5	3	2	6	3	2	5	3	2	5	3	2	5	3	2	
	27-45	Interior	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	14	13	9	12	11	7	10	9	6	9	8	5	8	7	4	7	6	4	6	5	3	7	4	6	5	3			
		Exposed	14	14	11	14	14	9	14	12	8	13	11	7	11	10	6	10	9	6	9	8	5	8	7	4	7	6	3	6	5	3	5	4	3	4	2	4	3	4	2	4	3	4	2	4	2	4	3	2		
	C	0-7	Interior	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	10	10	8	10	9	7	10	8	6	4	7	5	3	6	4	3	5	4	3	6	4	3	5	4	2	4	3	2			
			Exposed	10	9	7	10	8	6	10	7	5	9	7	5	8	6	4	8	5	4	7	5	3	6	4	3	5	3	2	4	3	2	4	3	2	4	3	2	4	2	3	2	1	3	2	1	3	2	1		
		7-20	Interior	10	10	9	10	10	8	10	9	7	10	8	6	10	7	6	10	6	5	9	6	5	8	5	4	6	4	3	6	3	3	5	3	2	4	3	2	4	3	2	4	3	2	4	2	2	2			
			Exposed	10	7	6	10	6	5	9	6	4	8	5	4	7	4	4	6	4	3	6	4	3	6	4	3	5	3	2	4	2	2	3	2	2	3	2	2	3	2	1	3	2	1	2	1	1	1			
		20-27	Interior	13	13	9	13	12	8	13	11	7	13	10	6	13	9	6	13	8	5	13	7	5	10	6	4	9	5	3	8	4	3	7	4	2	6	3	7	4	2	6	3	2	5	3	2	5	3	2		
			Exposed	13	9	6	13	8	5	12	7	4	11	6	4	10	5</																																			

Maximum Allowable 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									
0	B	0-7	Interior	24	24	24	24	24	23	24	24	20	24	24	18	24	24	16	24	21	15	24	19	13	23	16	11	19	14	10	17	12	8	14	10	7	13	9	6	11	8	6						
			Exposed	24	24	16	24	21	14	24	19	13	23	17	12	21	15	10	19	14	9	15	10	7	12	9	6	11	8	5	9	7	5	8	6	4	7	5	3	3	3							
		7-20	Interior	24	24	22	24	24	20	24	22	18	24	19	16	24	18	14	24	16	13	23	14	12	19	12	10	8	14	9	7	12	8	14	9	7	12	8	6	10	7	5	9	6	5			
			Exposed	24	17	14	24	15	13	22	14	11	19	12	10	18	11	9	16	10	8	14	9	8	12	8	6	10	7	5	9	6	5	8	5	4	7	4	3	6	4	3	3					
		20-27	Interior	24	24	24	24	24	22	24	24	19	24	24	16	24	21	14	24	19	13	24	18	12	24	15	10	22	13	8	19	11	7	16	9	6	14	8	5	12	7	5	10	6	4	9	5	3
			Exposed	24	21	14	24	19	13	24	17	11	24	15	10	24	14	9	22	12	9	20	11	8	17	9	6	14	9	5	12	7	5	10	6	4	9	5	3	8	5	3	8	5	3			
	27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	21	24	24	24	24	24	24	24	24	24	24	24	21	19	12	18	16	10	15	14	8	13	12	7	12	10	6	10	9	5	5	5			
		Exposed	24	24	19	24	24	16	24	21	14	21	19	12	19	17	11	17	16	10	16	14	9	13	12	7	11	10	6	10	9	5	9	8	5	7	4	7	4	7	6	3	7	6	3			
	C	0-7	Interior	23	24	18	24	23	16	24	20	14	24	18	12	23	16	11	21	15	10	19	13	9	16	11	8	13	10	7	11	8	6	10	7	5	9	6	4	8	5	4	8	5	4			
			Exposed	23	16	11	20	14	10	18	13	9	16	11	8	14	10	7	13	9	7	12	9	6	10	7	5	9	6	4	7	5	4	6	5	3	6	4	3	6	4	3	5	3	2			
		7-20	Interior	24	19	15	24	17	14	23	15	12	21	13	11	19	12	10	17	11	9	16	10	8	13	8	7	11	7	6	10	6	5	8	5	4	7	5	4	6	4	3	6	4	3			
			Exposed	19	12	10	17	11	9	15	10	8	13	9	7	12	8	6	11	7	6	10	6	5	8	5	4	7	5	4	6	4	3	5	3	3	3	3	5	3	2	4	3	2				
20-27		Interior	24	23	16	24	20	14	24	18	12	24	16	11	24	15	10	23	13	9	21	12	8	18	10	7	15	9	6	13	7	5	11	6	4	10	6	4	9	5	3	8	5	3				
		Exposed	24	15	10	23	13	9	20	12	8	18	10	7	16	9	6	15	9	6	14	8	5	12	7	5	11	6	4	10	6	4	3	6	3	2	5	3	2	5	3	2	6	3	2			
27-45	Interior	24	24	20	24	24	18	24	23	15	23	20	14	21	18	12	19	17	11	17	15	10	14	13	8	12	11	7	11	9	6	9	8	5	8	5	8	7	4	7	6	4	7	6	4			
	Exposed	21	18	12	18	16	10	16	15	9	15	13	8	13	12	7	12	11	6	11	10	6	9	8	5	8	7	4	7	6	4	6	5	3	5	3	5	5	3	5	3	5	4	2				
D	0-7	Interior	24	21	15	24	19	13	23	17	12	21	15	10	19	13	9	17	12	8	16	11	8	13	9	6	11	8	5	9	7	5	8	6	4	7	5	4	6	5	3	4	6	5	3			
		Exposed	19	13	9	17	12	8	15	11	7	13	10	7	12	9	6	11	8	5	10	7	5	8	6	4	7	5	3	6	4	3	5	4	3	5	4	3	5	3	2	4	3	2				
	7-20	Interior	24	16	13	22	14	11	19	12	10	17	11	9	16	10	8	14	9	7	13	8	7	11	7	6	9	6	5	8	5	4	7	4	6	4	3	5	4	3	5	3	3	3				
		Exposed	16	10	8	14	9	7	12	8	6	11	7	6	10	6	5	9	6	5	8	5	4	7	4	4	6	4	3	5	3	3	4	3	2	4	3	2	4	2	2	3	2	2				
	20-27	Interior	24	19	13	24	17	11	24	15	10	24	14	9	21	12	8	19	11	7	18	10	7	15	8	6	13	7	5	11	6	4	9	5	4	8	5	3	7	4	3	7	4	3				
		Exposed	21	12	8	19	11	7	17	10	6	15	9	6	14	8	5	12	7	5	11	6	4	10	5	4	8	5	3	7	4	3	6	3	2	5	3	2	5	3	2	5	3	2				
27-45	Interior	24	24	16	24	21	14	21	19	12	19	17	11	17	15	10	16	14	9	14	13	8	12	11	6	10	9	5	9	8	5	8	7	4	7	6	4	7	6	4	6	5	3					
	Exposed	17	15	10	15	14	8	14	12	7	12	11	7	11	10	6	10	9	5	9	8	5	8	7	4	7	6	3	6	5	3	5	4	3	4	4	2	4	2	4	3	2						
10	B	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	13	16	16	11	16	14	10	16	12	8	14	10	7	13	9	6	11	8	6	11	8	6					
			Exposed	16	16	16	16	16	14	16	16	13	16	16	12	16	15	10	16	14	9	16	12	9	15	10	7	12	9	6	11	8	5	9	7	5	8	6	4	7	5	3	3	3				
		7-20	Interior	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	16	17	17	14	17	16	13	17	12	10	16	10	8	14	9	7	12	8	6	10	7	5	9	6	5			
			Exposed	17	17	14	17	15	13	17	14	11	17	12	10	17	11	9	16	10	8	14	9	8	12	8	6	10	7	5	9	6	5	8	5	4	7	4	3	6	4	3	6	4	3			
		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	22	22	22				
			Exposed	22	21	14	22	19	13	22	17	11	22	15	9	22	12	8	20	11	8	17	9	6	14	8	5	12	7	5	10	6	4	9	5	4	8	5	3	8	5	3	8	5	3			
	27-45	Interior	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24					
		Exposed	24	24	19	24	24	16	24	21	14	21	19	12	19	17	11	17	16	10	16	14	9	13	12	7	11	10	6	10	9	5	9	8	5	7	4	7	6	4	7	6	3	7	6	3		
	C	0-7	Interior	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16				
			Exposed	16	16	11	16	14	10	16	13	9	16	11	8	14	10	7	13	9	7	12	9	6	10	7	5	9	6	4	7	5	4	6	5	3	6	4	3	5	3	3	3	2				
		7-20	Interior	17	17	15	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	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	12	10	17	11	9	15	10	8	13	9	7	12	8	6	11	7	6	10	6	5	8	5	4	7	5	4	6	4	3	5	3	3	3	3	3	2	4	3	2					
20-27		Interior	22	22	16	22	20	14	22	18	12	22	16	11	22	15	10	22	13	9	21	12	8	18	10	7	15	9	6	13	7	5	11	6	4	10	6	4	9	5	3	8	5	3				
		Exposed	22	15	10	22	13	9	20	12	8	18	10	7	16	9	6	15	9	6	14	8	5	11	7	4	10	6	4	8	5	3	7	4	3	6	4	3	6	4	2	6	3	2				
27-45</																																																



ASCE 7-16
Design Standard

II
Risk Category

30 ft
Roof Height

Ss = 3.00
Seismic

23 sq.ft
Module Area

PORTRAIT
Orientation

CROSS-SLOPE
Rail Direction

Micro Rail
Rail Type

SFM
Clamp

SFM DID-05B
Attachment

SPAN TABLES

Maximum Allowable 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																																																																																										
0	B	0-7	Interior	12	12	12	12	12	11	12	12	10	12	12	9	12	12	8	12	11	7	12	10	7	11	8	5	9	7	5	8	6	4	7	5	3	6	4	3	5	4	3	2	1																																																		
			Exposed	12	12	8	12	10	7	12	9	6	12	8	6	10	7	5	9	7	5	8	6	4	7	5	3	6	4	3	5	4	3	2	1	2	3	2	1	2	1																																																					
		7-20	Interior	12	12	11	12	12	10	12	11	9	12	9	8	12	9	7	12	8	6	11	7	12	9	6	11	7	6	5	8	5	4	7	4	3	6	4	3	5	3	2	4	3	2	1																																																
			Exposed	12	8	7	12	8	6	11	7	5	9	6	5	9	5	4	8	5	4	7	4	6	4	3	5	3	2	4	3	2	4	2	3	2	4	3	2	4	2	1	3	2	1																																																	
		20-27	Interior	12	12	12	12	11	12	12	9	12	12	8	12	10	7	12	9	6	12	12	8	12	10	7	12	9	6	12	9	6	12	7	5	11	6	4	9	5	3	8	4	3	7	4	2	6	3	2																																												
			Exposed	12	10	7	12	9	6	12	8	5	12	7	5	12	7	4	11	6	4	10	5	4	8	4	3	7	4	2	6	3	2	4	2	6	3	2	5	3	2	4	2	1	4	2	1																																															
	27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	10	12	12	9	12	12	8	12	11	7	10	9	12	12	8	12	11	7	4	10	9	6	9	8	5	7	4	8	4	6	3	5	4	2																																															
		Exposed	12	12	9	12	12	8	12	10	7	10	9	6	9	8	5	9	8	5	8	7	4	6	6	3	5	5	3	5	4	2	4	2	3	2	3	3	5	4	2	4	2	3	2	3	3	1																																														
	10	B	0-7	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8																																													
				Exposed	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8																																											
			7-20	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8																																										
				Exposed	8	8	7	8	8	6	8	7	5	8	6	5	8	5	4	8	5	4	7	4	6	4	3	5	3	2	4	3	2	4	2	3	2	4	2	3	2	4	2	3	2	4	2	3	2	1																																												
			20-27	Interior	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11																																											
				Exposed	11	10	7	11	9	6	11	8	5	11	7	5	11	7	4	11	6	4	10	5	4	8	4	3	7	4	2	6	3	2	5	3	2	4	2	1	3	2	5	3	2	4	2	1	4	2	1																																											
		27-45	Interior	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																																												
			Exposed	12	12	9	12	12	8	12	10	7	10	9	6	9	8	5	9	8	5	8	7	4	6	6	3	5	5	3	5	4	2	4	2	3	2	3	3	5	4	2	4	2	3	2	3	2	3	3	1																																											
		20	B	0-7	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5																																												
					Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5																																											
				7-20	Interior	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5																																										
					Exposed	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5																																										
				20-27	Interior	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8																																									
					Exposed	8	8	7	8	8	6	8	8	5	8	7	5	8	4	8	6	4	8	5	4	7	4	6	4	3	5	3	2	4	3	2	4	2	3	2	4	2	3	2	4	2	3	2	4	2	3	2	1																																									
			27-45	Interior	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9																																											
				Exposed	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9																																											

