



December 30, 2022

Sunmodo Corp  
14800 NE 65th St  
Vancouver, WA 98682  
TEL: (360) 844-0048

Attn.: Sunmodo Corp - Engineering Department

Re: Report # 2021-02963HG.01 – Sunmodo SMR100  
Subject: Engineering Certification for the State of New Hampshire

PZSE, Inc. – Structural Engineers has provided engineering and span tables for the Sunmodo SMR100 Rail, as presented in PZSE Report # 2021-02963HG.01, "Sunmodo SMR100 Rail, Engineering Certification for Gable and Hip Roofs". All information, data, and analysis therein are based on, and comply with, the following building codes and typical specifications:

- Building Codes:
1. ASCE/SEI 7-10 & 7-16, Minimum Design Loads for Buildings and other Structures, by American Society of Civil Engineers
  2. 2012, 2015, & 2018 International Building Code, by International Code Council, Inc.
  3. 2012, 2015, & 2018 International Residential Code, by International Code Council, Inc.
  4. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES
  5. Aluminum Design Manual 2015, by The Aluminum Association, Inc.
  6. ANSI/AWC NDS-2012, 2015, & 2018, National Design Specification for Wood Construction, by the American Wood Council

Design Criteria:

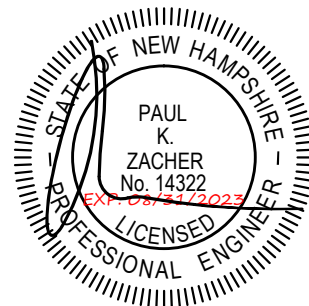
- Risk Category II
- Seismic Design Category = A - E
- Exposure Category = B, C & D
- Basic Wind Speed (ultimate) per ASCE 7-10 & 7-16 = 90 mph to 190 mph
- Ground Snow Load = 0 to 90 (psf)

This letter certifies that the loading criteria and design basis for the Sunmodo SMR100 Rail Span Tables are in compliance with the above codes.

If you have any questions on the above, do not hesitate to call.

Prepared by:  
PZSE, Inc. – Structural Engineers  
Roseville, CA

DIGITALLY SIGNED





September 1, 2021

SunModo Corp  
14800 NE 65<sup>th</sup> St  
Vancouver, WA 98682  
TEL: (360) 844-0048

Attn.: Sunmodo - Engineering Department

Re: Report #2021-02963HG.01 SunModo SMR100 Rail, Engineering Certification for Gable and Hip roofs.

PZSE, Inc. - Structural Engineers have reviewed SunModo SMR100 Rail. All information, data, and analysis contained within the SunModo SMR100 Rail span tables are based on and comply with the following codes:

1. Minimum Design Loads for Buildings and Other Structures, ASCE/SEI 7-10 & ASCE/SEI 7-16
2. 2012 - 2018 International Building Codes, by the International Code Council, Inc.
3. 2012 - 2018 International Residential Code, by the International Code Council, Inc.
4. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012, by ICC-ES
5. Aluminum Design Manual 2010 & 2015, by The Aluminum Association, Inc.
6. ANSI/AWC NDS-2012 & 2015, National Design Specification for Wood Construction, by the American Wood Council

Following are typical specifications to meet the above code requirements:

**Design Criteria:** Ground Snow Load = 0 - 90 (psf)  
Basic Wind Speed = 90 - 190 (mph)  
Roof Mean Height = 0 - 30 (ft)  
Enclosed and Partially Enclosed Gable and Hip Roof Pitch = 0° - 90° (degrees)  
Exposure Category = B, C & D

**Cantilever:** Maximum cantilever length is L/3, where "L" is the span noted in the Span Tables, provided there is at least 1 module length between maximum cantilevers.

**Clearance:** 2" Minimum clear and 10" Maximum clear from the top of the roof to top of PV panel.

**Splice:**

Rails installed with (2) Roof Attachments (1 rail span)\*: SMR100 Rail Splice where required shall be installed within a distance of  $L/4$  from either Roof Attachment, where “L” is the rail span.

Rails installed with (3) or more Roof Attachments (2 or more rail spans)\*: SMR100 Rail Splice where required shall not be installed within a distance of  $L/8$  from any Roof Attachment, where “L” is the rail span.

\*SMR100 Rail Splice may be installed on any portion of the span in instances where the rail is continuous over two roof attachments on both sides of the splice.

**Tolerance(s):**

1.0” tolerance for any specified dimension in this report is allowed for installation.

**Installation Orientation:**

Landscape (L) - PV Panel long dimension is parallel to the ridge/eave line of roof, and the PV panel is mounted on the long side.  
 Portrait (P) - PV Panel short dimension is parallel to the ridge/eave line of roof, and the PV panel is mounted on the short side.  
 Rail Spacing Tables assume maximum panel dimensions are: 82” x 42”

**Rail Materials:**

The SMR100 Rail Aluminum Alloys: 6005-T5, 6005A-T61, 6061-T6

**Components and Cladding Roof Zones:**

**Roof Zones – Enclosed and Partially Enclosed Gable Roofs,  $\theta \leq 7^\circ$ :**

The zones shall be determined using figure 30.3-2A of ASCE 7-16 (or figure 30.4-2A of ASCE 7-10). See Figure 1.

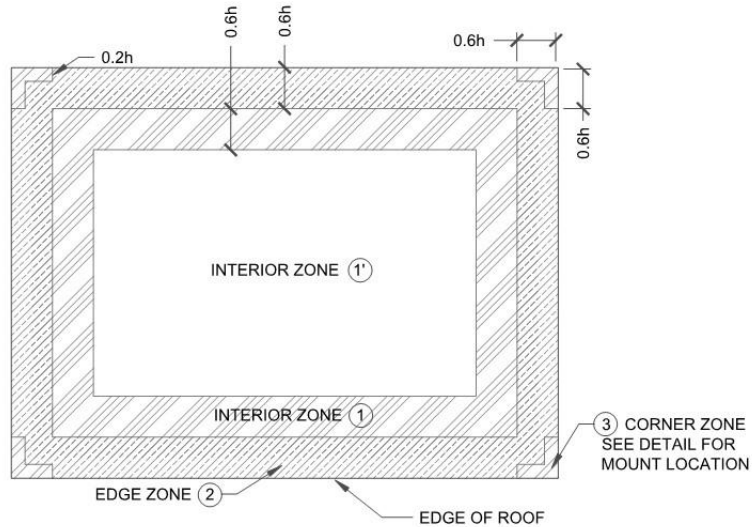


Figure 1: Roof Edge and Corner Zones, Gable Roofs,  $\theta \leq 7^\circ$

**Roof Zones – Enclosed and Partially Enclosed Gable and Hip Roofs,  $7^\circ < \theta \leq 90^\circ$ :**

The Edge Zone, “a,” shall be determined using figure 30.3-2B to figure 30.3-2D of ASCE 7-16 (or figure 30.4-2A to figure 30.4-2A of ASCE 7-10), for Gable roofs. The Edge Zone, “a,” shall be determined using figure 30.3-2E to figure 30.3-2I of ASCE 7-16 (or figure 30.4-2B – figure 30.4-2C of ASCE 7-10), for Hip roofs. Roofs from  $45^\circ < \theta \leq 90^\circ$  shall use the same Edge Zone, “a” determination as roofs from  $27^\circ < \theta \leq 45^\circ$ .

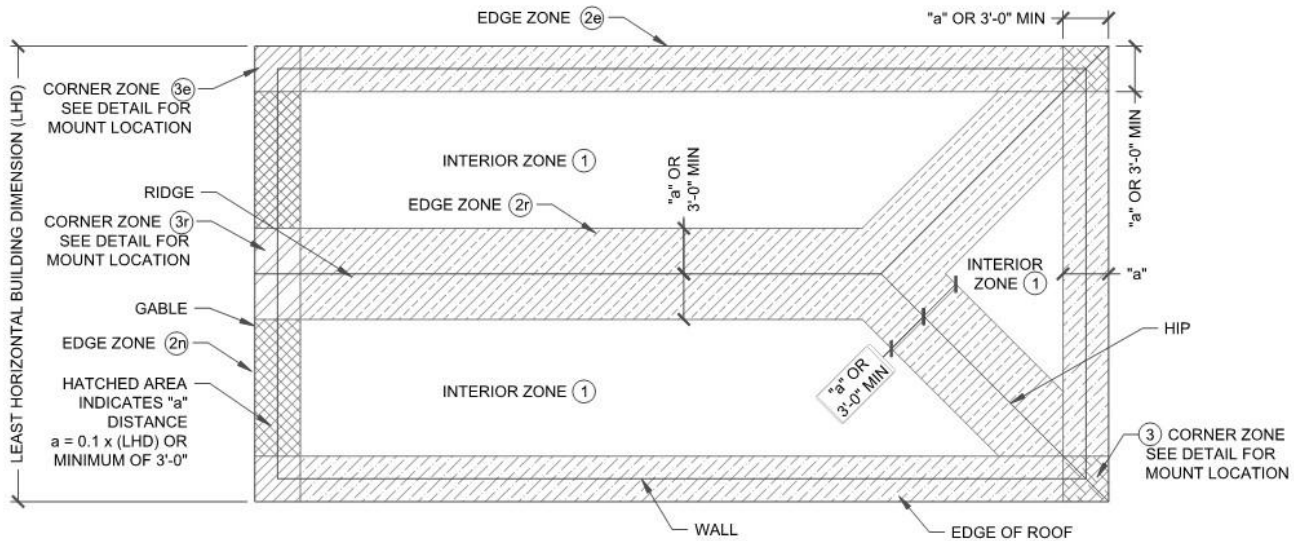


Figure 2: Roof Zones, Gable and Hip Roofs,  $7^\circ < \theta \leq 90^\circ$

**Panel with Support Mounts in Multiple Roof Zones:**

Edge and Corner Zone spacings (Zone 2 & 3, respectively) apply only to mounts located in those Zones, not to all the mounts supporting the module.

- Notes:
- 1) Tables are determined for Rail only and do not include roof capacity check.
  - 2) Risk Category II per ASCE 7-10 & ASCE 7-16.
  - 3) Topographic factor,  $k_{zt}$  is 1.0.
  - 4) Average parapet height is 0.0 ft.
  - 5) Wind speeds are LRFD values.
  - 6) Attachment spacing(s) apply to a seismic design category E or less.



**Design Responsibility:**

These tables are intended to be used under the responsible charge of a registered design professional where required by the authority having jurisdiction. In all cases, these tables should be used under the direction of a design professional with sufficient structural engineering knowledge and experience to be able to:

- Evaluate whether these tables apply to the project, and
- Understand and determine the appropriate values for all input parameters of these tables.

This letter certifies that the SunModo SMR100 Rail, when installed according to the limitations of this letter and the attached span tables, complies with the above codes and loading criteria. This certification excludes evaluation of the building structure to support the loads imposed on the building by the array; including, but not limited to strength and deflection of structural framing members, fastening and/or strength of roofing materials, and/or the effects of snow accumulation on the roof. Structures will require additional knowledge of the building and are outside the scope of the certification of this racking system.

If you have any questions on the above, do not hesitate to call.

Prepared by:  
PZSE, Inc. – Structural Engineers  
Roseville, CA



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Maximum Rail Spans (Inches)				SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-10 -- 72-Cell (P)																																									
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed -> Roof Zone ->	90 mph			95 mph			100 mph			105 mph			110 mph			115 mph			120 mph			130 mph			140 mph			150 mph			160 mph			170 mph			180 mph			190 mph		
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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 psf	B	0 to 7	All Mounts	93	93	93	93	93	91	93	93	88	93	93	85	93	93	82	93	93	79	93	93	76	90	90	69	85	85	64	81	81	60	76	76	56	71	71	52	67	67	49	63	63	46
		7 to 27	All Mounts	93	93	93	93	93	93	93	93	90	93	93	86	93	93	83	93	93	81	93	93	78	90	93	71	88	88	66	84	84	61	80	80	57	75	75	54	71	71	51	67	67	48
		27 to 45	All Mounts	95	95	95	95	95	95	95	95	95	95	95	95	94	94	94	92	92	91	89	89	88	85	85	83	82	82	79	78	78	73	75	75	68	71	71	64	66	66	60	63	63	57
		45 to 90	All Mounts	97	97	97	97	97	97	97	97	94	95	95	91	93	93	88	90	90	85	88	88	83	84	84	78	80	80	72	76	76	67	71	71	63	67	67	59	63	63	55	59	59	52
	C	0 to 7	All Mounts	93	93	84	93	93	81	93	93	77	93	93	73	90	90	69	87	87	66	84	84	63	79	79	58	73	73	54	68	68	50	63	63	47	60	60	44	56	56	41	53	53	39
		7 to 27	All Mounts	93	93	85	93	93	82	93	93	79	93	93	75	93	93	71	90	90	68	87	87	65	82	82	60	77	77	55	72	72	51	67	67	48	63	63	45	59	59	42	56	56	40
		27 to 45	All Mounts	95	95	95	93	93	93	90	90	89	88	88	86	85	85	83	83	83	81	81	81	78	77	77	71	72	72	66	67	67	61	63	63	57	59	59	54	56	56	51	53	53	48
		45 to 90	All Mounts	94	94	90	92	92	87	89	89	84	86	86	81	84	84	78	82	82	74	79	79	71	74	74	65	68	68	60	64	64	56	60	60	53	56	56	49	53	53	47	50	50	44
	D	0 to 7	All Mounts	93	93	79	93	93	74	91	91	70	87	87	66	85	85	63	82	82	60	79	79	58	72	72	53	67	67	49	62	62	46	58	58	43	54	54	40	51	51	38	48	48	36
		7 to 27	All Mounts	93	93	80	93	93	76	93	93	72	91	91	68	88	88	65	85	85	62	82	82	59	76	76	55	71	71	50	66	66	47	61	61	44	57	57	41	54	54	39	51	51	37
		27 to 45	All Mounts	91	91	91	88	88	87	86	86	84	83	83	81	81	81	78	79	79	74	77	77	71	72	72	65	66	66	60	62	62	56	58	58	52	54	54	49	51	51	46	48	48	44
		45 to 90	All Mounts	90	90	85	87	87	82	84	84	79	82	82	75	80	80	71	77	77	68	74	74	65	68	68	60	63	63	55	58	58	52	55	55	48	51	51	45	48	48	43	46	46	40
5 psf	B	0 to 7	All Mounts	90	90	90	90	90	90	90	90	88	90	90	85	90	90	82	90	90	79	90	90	76	90	90	69	85	85	64	81	81	60	76	76	56	71	71	52	67	67	49	63	63	46
		7 to 27	All Mounts	93	93	93	93	93	93	93	93	90	93	93	86	93	93	83	93	93	81	93	93	78	90	93	71	88	88	66	84	84	61	80	80	57	75	75	54	71	71	51	67	67	48
		27 to 45	All Mounts	95	95	95	95	95	95	95	95	95	95	95	95	94	94	94	92	92	91	89	89	88	85	85	83	82	82	79	78	78	73	75	75	68	71	71	64	66	66	60	63	63	57
		45 to 90	All Mounts	97	97	97	97	97	97	97	97	94	95	95	91	93	93	88	90	90	85	88	88	83	84	84	78	80	80	72	76	76	67	71	71	63	67	67	59	63	63	55	59	59	52
	C	0 to 7	All Mounts	90	90	84	90	90	81	90	90	77	90	90	73	90	90	69	87	87	66	84	84	63	79	79	58	73	73	54	68	68	50	63	63	47	60	60	44	56	56	41	53	53	39
		7 to 27	All Mounts	93	93	85	93	93	82	93	93	79	93	93	75	93	93	71	90	90	68	87	87	65	82	82	60	77	77	55	72	72	51	67	67	48	63	63	45	59	59	42	56	56	40
		27 to 45	All Mounts	95	95	95	93	93	93	90	90	89	88	88	86	85	85	83	83	83	81	81	81	78	77	77	71	72	72	66	67	67	61	63	63	57	59	59	54	56	56	51	53	53	48
		45 to 90	All Mounts	94	94	90	92	92	87	89	89	84	86	86	81	84	84	78	82	82	74	79	79	71	74	74	65	68	68	60	64	64	56	60	60	53	56	56	49	53	53	47	50	50	44
	D	0 to 7	All Mounts	90	90	79	90	90	74	90	90	70	87	87	66	85	85	63	82	82	60	79	79	58	72	72	53	67	67	49	62	62	46	58	58	43	54	54	40	51	51	38	48	48	36
		7 to 27	All Mounts	93	93	80	93	93	76	93	93	72	91	91	68	88	88	65	85	85	62	82	82	59	76	76	55	71	71	50	66	66	47	61	61	44	57	57	41	54	54	39	51	51	37
		27 to 45	All Mounts	91	91	91	88	88	87	86	86	84	83	83	81	81	81	78	79	79	74	77	77	71	72	72	65	66	66	60	62	62	56	58	58	52	54	54	49	51	51	46	48	48	44
		45 to 90	All Mounts	90	90	85	87	87	82	84	84	79	82	82	75	80	80	71	77	77	68	74	74	65	68	68	60	63	63	55	58	58	52	55	55	48	51	51	45	48	48	43	46	46	40
10 psf	B	0 to 7	All Mounts	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	79	83	83	76	83	83	69	83	83	64	81	81	60	76	76	56	71	71	52	67	67	49	63	63	46
		7 to 27	All Mounts	89	89	89	89	89	89	89	89	89	89	89	86	89	89	83	89	89	81	89	89	78	89	89	71	88	88	66	84	84	61	80	80	57	75	75	54	71	71	51	67	67	48
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		45 to 90	All Mounts	97	97	97	97	97	97	97	97	94	95	95	91	93	93	88	90	90	85	88	88	83	84	84	78	80	80	72	76	76	67	71	71	63	67	67	59	63	63	55	59	59	52
	C	0 to 7	All Mounts	83	83	83	83	83	83	83	83	77	83	83	73	83	83	69	83	83	66	83	83	63	79	79	58	73	73	54	68	68	50	63	63	47	60	60	44	56	56	41	53	53	39
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		27 to 45	All Mounts	95	95	95	93	93	93	90	90	89	88	88	86	85	85	83	83	83	81	81	81	78	77	77	71	72	72	66	67	67	61	63	63	57	59	59	54	56	56	51	53	53	48
		45 to 90	All Mounts	94	94	90	92	92	87	89	89	84	86	86	81	84	84	78	82	82	74	79	79	71	74	74	65	68	68	60	64	64	56	60	60	53	56	56	49	53	53	47	50	50	44
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		7 to 27	All Mounts	90	90	80	90	90	76	90	90	72	90	90	68	88	88	65	85	85	62	82	82	59	76	76	55	71	71	50	66	66	47	61	61	44	57	57	41	54	54	39	51	51	37
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Maximum Rail Spans (Inches)				SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-10 -- 72-Cell (P)																																											
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed -> Roof Zone ->	90 mph			95 mph			100 mph			105 mph			110 mph			115 mph			120 mph			130 mph			140 mph			150 mph			160 mph			170 mph			180 mph			190 mph				
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	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 to 27	All Mounts	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79		
		27 to 45	All Mounts	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84		
		45 to 90	All Mounts	97	97	97	97	97	97	97	97	94	95	95	91	93	93	88	90	90	85	88	88	83	84	84	78	80	80	72	76	76	67	71	71	63	67	67	59	63	63	55	59	59	52		
	C	0 to 7	All Mounts	74	74	74	74	74	74	74	74	74	74	74	73	74	74	69	74	74	66	74	74	63	74	74	58	73	73	54	68	68	50	63	63	47	60	60	44	56	56	41	53	53	39		
		7 to 27	All Mounts	79	79	79	79	79	79	79	79	79	79	79	75	79	79	71	79	79	68	79	79	65	78	78	60	76	76	55	72	72	51	67	67	48	63	63	45	59	59	54	56	56	51		
		27 to 45	All Mounts	84	84	84	84	84	84	84	84	84	84	84	84	84	84	83	83	83	81	81	81	78	81	81	78	81	81	78	81	81	78	81	81	78	81	81	78	81	81	78	81	81	78		
		45 to 90	All Mounts	94	94	90	92	92	87	89	89	84	86	86	81	84	84	78	82	82	74	79	79	71	74	74	65	72	72	65	68	68	60	64	64	56	60	60	53	56	56	49	53	53	47	50	50
	D	0 to 7	All Mounts	74	74	74	74	74	74	74	74	70	74	74	66	74	74	63	74	74	60	74	74	58	72	72	53	67	67	49	62	62	46	58	58	43	54	54	40	51	51	38	48	48	36		
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		27 to 45	All Mounts	86	86	86	86	86	86	86	86	84	83	83	81	81	81	78	79	79	74	77	77	71	72	72	65	66	66	60	62	62	56	58	58	52	54	54	49	51	51	46	48	48	44		
		45 to 90	All Mounts	90	90	85	87	87	82	84	84	79	82	82	75	80	80	71	77	77	68	74	74	65	68	68	60	63	63	55	58	58	52	55	55	48	51	51	45	48	48	43	46	46	40		
30 psf	B	0 to 7	All Mounts	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73		
		7 to 27	All Mounts	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77		
		27 to 45	All Mounts	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80		
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	C	0 to 7	All Mounts	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73		
		7 to 27	All Mounts	77	77	77	77	77	77	77	77	77	77	77	75	77	77	71	77	77	68	77	77	65	75	75	60	74	74	55	72	72	51	67	67	48	63	63	45	59	59	52	56	56	40		
		27 to 45	All Mounts	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80		
		45 to 90	All Mounts	94	94	90	92	92	87	89	89	84	86	86	81	84	84	78	82	82	74	79	79	71	74	74	65	68	68	60	64	64	56	60	60	53	56	56	49	53	53	47	50	50	44		
	D	0 to 7	All Mounts	74	74	74	74	74	74	74	74	70	74	74	66	74	74	63	74	74	60	74	74	58	72	72	53	67	67	49	62	62	46	58	58	43	54	54	40	51	51	38	48	48	36		
		7 to 27	All Mounts	78	78	78	78	78	76	78	78	72	78	78	68	78	78	65	78	78	62	77	77	59	75	75	55	71	71	50	66	66	47	61	61	44	57	57	41	54	54	39	51	51	37		
		27 to 45	All Mounts	82	82	82	82	82	82	82	82	82	82	82	81	81	81	78	79	79	74	77	77	71	72	72	65	66	66	60	62	62	56	58	58	52	54	54	49	51	51	46	48	48	44		
		45 to 90	All Mounts	90	90	85	87	87	82	84	84	79	82	82	75	80	80	71	77	77	68	74	74	65	68	68	60	63	63	55	58	58	52	55	55	48	51	51	45	48	48	43	46	46	40		
35 psf	B	0 to 7	All Mounts	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71		
		7 to 27	All Mounts	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73		
		27 to 45	All Mounts	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77		
		45 to 90	All Mounts	94	94	94	94	94	94	94	94	94	94	94	91	93	93	88	90	90	85	88	88	83	84	84	78	80	80	72	76	76	67	71	71	63	67	67	59	63	63	55	59	59	52		
	C	0 to 7	All Mounts	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71		
		7 to 27	All Mounts	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73		
		27 to 45	All Mounts	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77		
		45 to 90	All Mounts	94	94	90	92	92	87	89	89	84	86	86	81	84	84	78	82	82	74	79	79	71	74	74	65	68	68	60	64	64	56	60	60	53	56	56	49	53	53	47	50	50	44		
	D	0 to 7	All Mounts	73	73	73	73	73	73	73	73	70	73	73	66	73	73	63	73	73	60	73	73	58	72	72	53	67	67	49	62	62	46	58	58	43	54	54	40	51	51	38	48	48	36		
		7 to 27	All Mounts	76	76	76	76	76	76	76	76	72	76	76	68	76	76	65	76	76	62	75	75	59	73	73	55	71	71	50	66	66	47	61	61	44	57	57	41	54	54	39	51	51	37		
		27 to 45	All Mounts	79	79	79	79	79	79	79	79	79	79	79	79	79	79	78	78	78	74	77	77	71	72	72	65	66	66	60	62	62	56</														









Maximum Rail Spans (Inches)			SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (P)																																																			
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->		90 mph						95 mph						100 mph						105 mph						110 mph						115 mph						120 mph													
			Roof Zone ->	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r									
15 psf	B	0 to 7	Array Interior	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78				
			Array Edge	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
		20 psf	B	0 to 7	Array Interior	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84



Maximum Rail Spans (Inches)			SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (P)																																									
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->																																									
			90 mph						95 mph						100 mph						105 mph						110 mph						115 mph						120 mph					
			Roof Zone ->																																									
			1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r
30 psf	B	0 to 7	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
		7 to 20	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
		20 to 27	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
		27 to 45	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
		45 to 90	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86
		C	0 to 7	73	73	73	73	73	73	73	73	69	69	69	69	73	73	66	66	66	66	73	73	66	66	66	66	73	73	62	62	62	62	73	73	59	59	59	59	73	73	68	68	68
	7 to 20		75	75	75	75	75	75	75	75	74	74	74	74	75	75	70	70	70	70	75	75	67	67	67	67	75	75	64	64	64	64	75	75	61	61	61	61	75	75	59	59	59	59
	20 to 27		77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
	27 to 45		80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
	45 to 90		96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
	0 to 7		73	73	73	73	73	73	73	73	69	69	69	69	73	73	66	66	66	66	73	73	62	62	62	62	73	73	59	59	59	59	73	73	68	68	68	68						
	D	0 to 7	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
		7 to 20	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
		20 to 27	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
		27 to 45	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
		45 to 90	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97

Maximum Rail Spans (Inches)			SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (P)																																																	
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->		130 mph						140 mph						150 mph						160 mph						170 mph						180 mph						190 mph											
			Roof Zone ->	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r							
30 psf	B	0 to 7	Array Interior	73	73	73	73	73	62	62	73	73	68	68	68	57	57	73	73	63	63	63	53	53	73	69	59	59	59	50	50	73	65	55	55	55	47	47	73	61	52	52	52	44	44	73	58	49	49	49	41	41
			Array Edge	75	70	59	59	50	50	73	64	55	55	55	46	46	73	60	51	51	51	43	43	73	56	48	48	48	40	40	73	52	45	45	45	38	38	69	49	42	42	42	36	36	65	47	40	40	40	34	34	
		7 to 20	Array Interior	75	75	64	64	64	58	58	73	73	59	59	59	54	54	68	68	55	55	55	45	45	63	63	51	51	51	47	47	59	59	48	48	48	44	44	56	56	45	45	45	45	45	63	53	43	43	43	43	43
			Array Edge	64	64	64	51	51	51	47	59	59	59	48	48	48	44	55	55	55	44	44	44	40	51	51	41	41	41	41	41	48	48	48	39	39	35	35	45	45	45	37	37	37	43	43	43	35	35	35		
		C	20 to 27	Array Interior	77	77	70	70	70	67	67	77	77	65	65	65	62	77	77	60	60	60	50	50	74	74	74	56	56	54	69	69	59	59	59	53	53	65	65	55	55	55	50	50	61	61	61	47	47	47	47	
				Array Edge	74	74	74	57	57	57	54	69	69	69	52	52	52	50	64	64	64	49	49	49	47	59	59	59	46	46	46	56	56	56	43	43	43	53	53	53	40	40	40	49	49	49	39	39	39			
			27 to 45	Array Interior	80	80	80	78	78	78	78	77	77	77	72	72	72	72	71	71	71	67	67	67	67	67	67	63	63	63	62	62	62	62	62	53	53	59	59	59	56	56	56	56	56	56	53	53	53			
				Array Edge	67	67	67	63	63	63	63	62	62	62	59	59	59	59	58	58	58	55	55	55	51	51	54	54	54	51	51	51	51	48	48	48	48	48	48	44	44	44	45	45	45	43	43	43				
			D	0 to 7	Array Interior	83	83	89	89	89	89	89	89	84	84	84	84	84	86	86	80	80	80	80	82	82	75	75	75	75	79	79	71	71	71	71	76	76	67	67	67	71	71	63	63	63						
	Array Edge				83	83	76	76	76	76	76	79	79	70	70	70	70	70	74	74	65	65	65	65	69	69	61	61	61	61	65	65	57	57	57	61	61	54	54	54	54	54	51	51	51							
	7 to 20			Array Interior	73	73	61	61	61	52	52	73	67	57	57	57	48	48	73	62	53	53	53	44	44	73	58	49	49	49	42	42	73	54	46	46	46	39	39	72	51	44	44	44	37	37						
				Array Edge	73	58	50	50	50	42	42	73	54	46	46	46	39	39	70	50	43	43	43	36	36	65	47	40	40	40	34	34	61	44	38	38	38	32	32													
	35 psf			0 to 7	Array Interior	66	66	66	53	53	53	61	61	61	49	49	49	45	57	57	57	46	46	46	53	53	43	43	43	39	50	50	50	40	40	40	47	47	47	38	38	38										
		Array Edge			53	53	43	43	43	39	39	49	49	49	40	40	40	40	46	46	46	37	37	37	43	43	35	35	35	32	32	40	40	40	33	33	33															
		40 psf		0 to 7	Array Interior	68	68	68	68	68	62	62	68	68	68	68	68	68	68	68	63	63	63	53	53	68	68	59	59	59	50	50	68	68	55	55	55	47	47													
					Array Edge	68	68	59	59	59	50	50	68	64	55	55	55	46	46	68	60	51	51	51	43	43	68	56	48	48	48	40	40	68	52	45	45	45	38	38												





Maximum Rail Spans (Inches)			SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (P)																																																		
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->																																																		
			130 mph						140 mph						150 mph						160 mph						170 mph						180 mph						190 mph														
			Roof Zone ->																																																		
			1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r									
45 psf	B	0 to 7	Array Interior	65	65	65	65	65	62	62	65	65	65	65	65	57	57	65	65	63	63	63	53	53	65	65	59	59	50	50	65	65	55	55	55	47	47	65	61	52	52	52	44	44	65	58	49	49	49	41	41		
			Array Edge	65	65	59	59	50	50	68	64	55	55	55	46	46	65	60	51	51	51	43	43	65	56	48	48	48	40	40	65	52	45	45	45	38	38	65	49	42	42	42	36	36	65	47	40	40	40	34	34		
		7 to 20	Array Interior	68	68	64	64	64	58	68	68	59	59	59	54	54	68	68	61	61	61	55	55	63	63	63	63	51	51	47	59	59	48	48	48	44	44	56	56	45	45	45	41	41	53	53	43	43	43	39	39		
			Array Edge	64	64	64	64	51	51	51	47	59	59	59	48	48	48	44	55	55	55	44	44	44	40	57	51	41	41	41	41	38	48	48	48	39	39	35	35	45	45	45	37	37	33	33							
		20 to 27	Array Interior	67	67	67	67	67	67	67	67	67	65	65	65	62	67	67	67	60	60	60	58	67	67	67	66	66	56	56	67	67	67	66	66	56	56	67	67	68	68	68	53	53	65	65	65	50	50	40	40		
			Array Edge	67	67	67	67	57	57	57	54	67	67	67	62	62	62	52	52	64	64	64	64	49	49	49	47	59	59	59	46	46	46	46	56	56	56	43	43	43	43	53	53	53	40	40	39	39					
		27 to 45	Array Interior	72	72	72	72	72	72	72	72	72	72	72	64	72	71	71	71	71	67	60	67	67	67	67	67	65	63	62	62	62	62	59	53	59	59	59	59	56	56	50	56	56	56	56	56	53	47	53			
			Array Edge	67	67	67	67	63	63	63	62	62	62	62	59	59	59	54	86	86	80	80	80	80	80	82	82	75	75	75	75	75	79	79	71	71	71	71	71	76	76	67	67	67	67	67							
		C	0 to 7	Array Interior	65	65	61	61	61	52	52	65	65	57	57	57	48	48	65	62	53	53	53	44	44	65	58	49	49	49	42	42	65	54	46	46	46	39	39	65	51	44	44	44	37	37	65	48	41	41	41	35	35
				Array Edge	65	65	50	50	50	42	42	65	64	46	46	46	39	39	65	60	43	43	43	36	36	65	50	40	40	40	34	34	65	47	40	40	40	32	32	65	41	35	35	35	30	30							
			7 to 20	Array Interior	66	66	66	63	63	53	53	49	61	61	61	49	49	49	45	57	57	57	46	46	46	42	53	53	43	43	43	39	50	50	50	40	40	40	37	47	47	47	38	38	38	35	44	44	44	36	36	36	33
				Array Edge	66	66	66	66	66	66	66	66	61	61	61	49	49	49	45	57	57	57	46	46	46	42	53	53	43	43	43	39	50	50	40	40	40	37	47	47	47	38	38	38	35								
	20 to 27		Array Interior	67	67	67	67	67	67	67	67	67	67	67	67	67	60	60	60	60	60	60	50	50	62	62	62	62	62	52	52	62	62	62	62	62	50	50	62	62	62	62	62	40	40								
			Array Edge	62	62	62	62	62	62	62	62	62	62	62	54	54	54	52	63	63	63	63	63	63	63	62	62	62	62	62	52	52	62	62	62	62	62	50	50	62	62	62	62	62	40	40							
	27 to 45		Array Interior	69	69	69	69	69	69	69	69	69	69	69	69	69	60	60	60	60	60	60	50	50	62	62	62	62	62	52	52	62	62	62	62	62	50	50	62	62	62	62	62	40	40								
			Array Edge	56	56	56	56	53	53	53	47	53	53	53	47	47	47	46	57	57	57	57	57	57	57	56	56	56	56	56	46	46	56	56	56	56	56	46	46	56	56	56	56	56	46	46							
	D		0 to 7	Array Interior	68	68	66	66	66	56	56	47	68	68	61	61	61	52	52	68	68	68	68	68	68	68	68	68	68	68	68	58	58	68	68	68	68	68	58	58	68	68	68	68	68	53	53						
				Array Edge	68	68	56	56	56	47	47	68	68	61	61	61	52	52	68	68	68	68	68	68	68	68	68	68	68	68	58	58	68	68	68	68	68	58	58	68	68	68	68	68	53	53							
			7 to 20	Array Interior	60	60	60	60	60	49	49	44	56	56	56	45	45	45	41	52	52	52	42	42	42	38	49	49	49	49	49	49	49	46	46	46	46	46	46	46	43	43	43	35	35	35	32						
				Array Edge	49	49	49	49	40	40	40	36	45	45	45	37	37	37	33	42	42	42	34	34	34	31	39	39	39	32	32	32	29	37	37	37	30	30	30	27	35	35	35	28	28	28	24						
		20 to 27	Array Interior	70	70	70	70	70	70	70	70	70	70	70	70	70	60	60	60	60	60	60	50	50	60	60	60	60	60	50	50	60	60	60	60	60	50	50	60	60	60	60	60	40	40								
			Array Edge	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55							
		27 to 45	Array Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	59	59	59	59	59	59	56	56	55	55	55	52	52	52	51	51	51	51	51	48	48	48	48	48	48	48	48	48									
			Array Edge	51	51	51	51	49	49	49	49	59	59	59	59	59	59	59	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55							

Table with columns for Ground Snow Load, Exposure Category, Panel Angle, Wind Speed (90, 95, 100, 105, 110, 115, 120 mph), Roof Zone, and Array Interior/Edge. Rows are organized by wind speed (70 psf, 80 psf, 90 psf) and exposure category (B, C, D).

Maximum Rail Spans (Inches)			SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (P)																																																		
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->		130 mph						140 mph						150 mph						160 mph						170 mph						180 mph						190 mph												
			Roof Zone ->	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r								
70 psf	B	0 to 7	Array Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53		
			Array Edge	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53		
		7 to 20	Array Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56		
			Array Edge	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56		
		C	20 to 27	Array Interior	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	
				Array Edge	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	
			27 to 45	Array Interior	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	
				Array Edge	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	
			D	45 to 90	Array Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
					Array Edge	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
				0 to 7	Array Interior	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
					Array Edge	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
	7 to 20			Array Interior	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	
				Array Edge	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	









Maximum Rail Spans (Inches)			SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (L)																																																							
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->																																																							
			130 mph						140 mph						150 mph						160 mph						170 mph						180 mph						190 mph																			
			Roof Zone ->																																																							
			1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r								
0 psf	B	0 to 7	Array Interior	116	101	90	90	80	80	116	95	86	86	86	74	74	115	91	81	81	81	69	69	109	87	77	77	77	65	65	104	83	72	72	72	61	61	100	80	68	68	68	57	57	96	75	64	64	64	54	54	83	61	52	52	52	44	44
		Array Edge	110	87	77	77	77	65	65	104	82	72	72	72	60	60	99	78	67	67	67	56	56	94	73	62	62	62	53	53	90	68	59	59	59	49	49	86	64	55	55	55	47	47	83	61	52	52	52	44	44							
		7 to 20	Array Interior	95	95	82	82	82	76	76	90	90	90	77	77	70	70	85	85	85	85	85	72	72	82	82	62	62	62	53	53	78	78	78	63	63	63	57	73	73	73	59	59	59	54	69	69	69	56	56	56	51						
		Array Edge	82	82	82	67	67	67	61	61	77	77	77	62	62	62	57	72	72	72	58	58	58	53	67	67	67	54	54	54	49	63	63	63	51	51	51	46	59	59	59	48	48	48	44													
		20 to 27	Array Interior	105	105	105	87	87	87	85	85	99	99	99	83	83	83	81	95	95	95	79	79	79	76	90	90	90	74	74	74	71	87	87	87	69	69	69	66	83	83	83	65	65	65	63	80	80	80	62	62	62	62					
		Array Edge	91	91	91	74	74	74	71	71	86	86	86	68	68	68	66	82	82	82	64	64	64	61	78	78	78	60	60	60	57	73	73	73	56	56	56	54	69	69	69	53	53	53	51													
	C	27 to 45	Array Interior	98	98	98	94	87	87	87	93	93	93	89	83	89	88	88	88	88	85	78	85	84	84	84	84	81	73	81	81	81	81	81	77	69	77	77	77	77	73	65	73	73	73	73	69	61	69	61								
		Array Edge	85	85	85	82	74	82	74	82	80	80	80	80	77	68	77	75	75	75	75	71	64	71	70	70	70	70	67	59	67	66	66	66	66	63	56	63	62	62	62	62	59	53	59													
		45 to 90	Array Interior	112	112	106	106	106	106	106	107	107	101	101	101	101	103	103	96	96	96	96	96	99	99	92	92	92	92	95	95	88	88	88	88	92	92	85	85	85	85	89	89	81	81	81	81											
		Array Edge	99	99	92	92	92	92	92	95	95	87	87	87	87	91	91	83	83	83	83	87	87	80	80	80	80	83	83	75	75	75	75	80	80	71	71	71	71	76	76	67	67	67	67													
		0 to 7	Array Interior	112	89	80	80	80	67	67	106	84	74	74	74	62	62	101	80	69	69	69	58	58	96	76	65	65	65	54	54	92	71	61	61	61	51	51	89	67	57	57	57	48	48													
		Array Edge	97	76	65	65	65	55	55	92	70	60	60	60	51	51	87	65	56	56	56	47	47	83	61	52	52	52	44	44	80	57	49	49	49	42	42	75	54	46	46	46	39	39														
D	7 to 20	Array Interior	84	84	84	70	70	70	80	80	80	65	65	59	59	74	74	74	60	60	60	55	69	69	69	56	56	56	65	65	53	53	53	48	61	61	61	50	50	50	45	58	58	47	47	47	43	43										
	Array Edge	70	70	70	57	57	57	51	65	65	65	52	52	48	60	60	60	49	49	49	44	56	56	56	46	46	46	53	53	43	43	43	39	50	50	50	40	40	40	37																		
	20 to 27	Array Interior	93	93	93	77	77	77	88	88	88	71	71	68	84	84	84	66	66	66	63	80	80	80	62	62	62	76	76	76	58	58	58	71	71	71	55	55	55	67	67	67	52	52	52													
	Array Edge	81	81	81	62	62	62	60	75	75	75	57	57	55	70	70	70	54	54	54	51	65	65	65	50	50	50	61	61	61	47	47	47	45	58	58	48	48	48	44	44																	
	27 to 45	Array Interior	87	87	87	84	76	84	82	82	82	82	79	79	78	78	78	78	74	66	74	73	73	73	69	62	69	69	69	69	69	65	58	65	65	65	65	65	61	55	61																	
	Array Edge	73	73	73	69	62	69	68	68	68	68	64	57	64	63	63	63	63	60	53	60	59	59	59	56	50	56	56	56	56	53	47	53	52	52	52	52	44	50	47																		



Maximum Rail Spans (Inches)		SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (L)																																																																	
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->						90 mph						95 mph						100 mph						105 mph						110 mph						115 mph						120 mph																						
			Roof Zone ->			1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r														
15 psf	B	0 to 7	Array Interior	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97										
			20 psf	B	0 to 7	Array Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92													
		25 psf				B	0 to 7	Array Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92											



Maximum Rail Spans (Inches)			SMR100 Rail Flush-Mount on 0 to 30 Foot Roof -- ASCE 7-16 -- 72-Cell (L)																																																						
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->	90 mph						95 mph						100 mph						105 mph						110 mph						115 mph						120 mph																	
			Roof Zone ->	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r	1'	2e	2r	2n	3e	3r						
30 psf	B	0 to 7	Array Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
		7 to 20	Array Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94
		20 to 27	Array Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
	C	0 to 7	Array Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
		7 to 20	Array Interior	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94
		20 to 27	Array Interior	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
35 psf	B	0 to 7	Array Interior	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
		7 to 20	Array Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91						
		20 to 27	Array Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92						
	C	0 to 7	Array Interior	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
		7 to 20	Array Interior	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91						
		20 to 27	Array Interior	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92						
40 psf	B	0 to 7	Array Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86						
		7 to 20	Array Interior	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88						
		20 to 27	Array Interior	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88						
	C	0 to 7	Array Interior	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86						
		7 to 20	Array Interior	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88						
		20 to 27	Array Interior	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88						



Maximum Rail Spans (Inches)		SMR100 Rail Flush-Mount on 0 to 30 Foot Foot -- ASCE 7-16 -- 72-Cell (L)																																															
Ground Snow Load	Exposure Category	Panel Angle	Wind Speed ->																																														
			90 mph						95 mph						100 mph						105 mph						110 mph						115 mph						120 mph										
		Roof Zone ->	1'	1	2e	2r	2n	3e	3r	1'	1	2e	2r	2n	3e	3r	1'	1	2e	2r	2n	3e	3r	1'	1	2e	2r	2n	3e	3r	1'	1	2e	2r	2n	3e	3r	1'	1	2e	2r	2n	3e	3r					
45 psf	B	0 to 7	Array Interior	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83				
			50 psf	B	0 to 7	Array Interior	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	
		60 psf				B	0 to 7	Array Interior	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76





