

SPAN TABLES ASCE 7-16

**SolFX
Solar Strut
Mount**





Structural Certification & Span Tables for the SolFX Solar Strut Mount System

This letter certifies the structural performance and code compliance of the **SolFX Solar Strut Mount** system. This document must be read in full prior to use on any project.

The SolFX Solar Strut Mount is a rooftop mounting system designed to support photovoltaic (PV) modules in a flush-mounted configuration (parallel to the roof surface). PV modules are secured using SolFX mounting clamps to **1-5/8" steel strut channels loads are based on 33 ksi steel cold formed to 42ksi**, which are mounted to selected roof attachments via stainless steel hardware or mounting brackets. Attachments are fastened directly to the structural roof members or to stanchions anchored to the structure.

This system has been designed and certified in accordance with the following reference standards and applies to the load conditions and configurations identified in the attached span tables:

- **ASCE/SEI 7-16** – *Minimum Design Loads for Buildings and Other Structures*
- **2021 International Building Code (IBC 2021)**
- **2022 California Building Code (CBC 2022)**
- **SEAOC PV2-2017** – *Wind Design for Solar Arrays*

Scope of Span Tables

The span tables provided with this letter define the **maximum allowable spacing between roof attachments** for the SolFX Solar Strut Mount system. These values account for combinations of:

- **Wind exposure categories B, C, and D**
- **Roof zones** per ASCE 7-16 for gable and hip roofs
- **Roof slopes between 8° and 45°**

The span tables apply only when the following conditions are met:

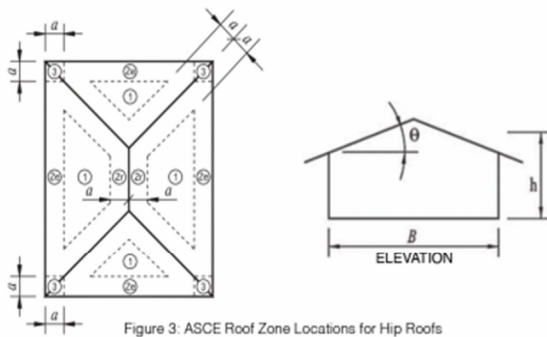
1. Span is measured **center-to-center** between adjacent roof attachments.
2. Each module must be supported by a minimum of **two strut channels**.
3. Roof slope is between **8° and 45°**.

4. Mean roof height (average of eave and ridge height from grade) does not exceed **30 feet**.
 5. Minimum **2" clearance** is maintained between roof and underside of the array. The system height (h_2), defined as the distance from module top surface to roof, shall not exceed **10"**.
 6. Module dimensions do not exceed the limits listed in the applicable span tables.
 7. All components must be installed per the **SolFX Solar Strut Mount Installation Guide**. Using roofing best practices.
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Design Assumptions and Adjustments

1. The system is designed as **Risk Category II**, per ASCE 7-16 Table 1.5-1.
2. **Wind speeds** follow ASCE 7-16 Fig. 26.5-1B and applicable local amendments.
 - No topographic wind effects are included.
 - Topographic factor (K_{zt}) and ground elevation factor (K_e) are both assumed to be **1.0**.
3. **Snow load** is based on **ground snow load** (ASCE 7-16 Fig. 7.2-1).
 - If local code specifies flat roof snow load, it must be converted to ground snow load prior to using these tables.
 - No special snow conditions (unbalanced, drifting, sliding, etc.) are considered.
 - No rain-on-snow surcharge is considered.
 - These tables do not apply to buildings that are **unheated, below freezing, or kept just above freezing**.
4. **Seismic assumptions (S_s , Site Class A-D)**:
 - Ground snow ≤ 42 psf: $S_s \leq 2.0g$
 - Ground snow > 65 psf: $S_s < 1.0g$
 - Ground snow between 42–65 psf: $S_s < 1.5g$
5. **Roof Zones** are defined using ASCE 7-16 Figures 30.3-2A through 30.3-2I.

- Grouped based on equivalent external pressure coefficients (GCp).
 - Zone definitions and locations are illustrated in the figures below each span table.
6. **Cantilever length** (from rail end to nearest attachment) must not exceed **1/3 of the maximum allowable span**.
 7. Allowable span may be multiplied by **1.08** if the rail is continuous over at least **three spans**.
 8. **Rail connectors** Do not increase span of cantilevered channels. 1/3 max span cantilever rule applies when connecting two rails with Rail Connector.



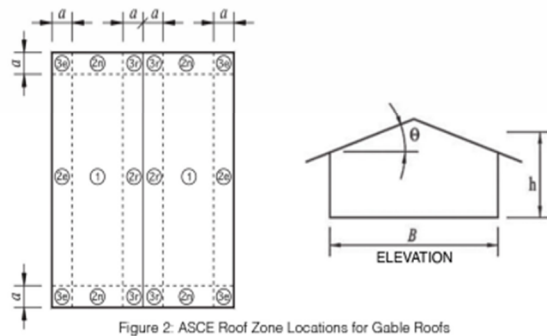
Notation (Per ASCE 7-16)

a = 10% of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m). If an overhang exists, the edge distance shall be measured from the outside edge of the overhang. The horizontal dimensions used to compute the edge distance shall not include any overhang distances.

B = Horizontal dimension of building measured normal to wind direction, in ft (m).

h = Mean roof height, in ft (m).

θ = Angle of plane of roof from horizontal, in degrees.



Notation (Per ASCE 7-16)

a = 10% of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m). If an overhang exists, the edge distance shall be measured from the outside edge of the overhang. The horizontal dimensions used to compute the edge distance shall not include any overhang distances.

B = Horizontal dimension of building measured normal to wind direction, in ft (m).

h = Mean roof height, in ft (m).

θ = Angle of plane of roof from horizontal, in degrees.



Edge Module

- A module is considered an Edge Module if the distance from the module to the nearest roof edge (eave, ridge, rake, or hip) is less than twice the height of the array ($2h_2$), where h_2 is the vertical distance from the roof surface to the top of the module.
- Reduced allowable spans and cantilevers apply only to the section of rail supporting these Edge Modules. If the relevant roof edge is an eave or ridge, this adjustment applies only to the rail closest to that edge.

Limitations & Responsibilities

- These span tables are certified **only for the SolFX Solar Strut Mount** system.
- The structural adequacy of **roof attachments, PV modules, and roof framing** is **not evaluated** in this document.
- It is the responsibility of the **installer or system designer** to ensure those elements can support all applicable design loads resulting from the racking configuration.
- This letter does **not certify site-specific conditions**, including localized wind/snow loads, roof profile, or roof zones — these remain the responsibility of the installer or licensed engineer of record.

Steve Reid, SE

[illegible][illegible]



72 Cell Modules Exposure B and C

1 5/8" Strut Channel	Roof Type(s) Flush Mount System Span Table (Inches) Max module length 88", Max module Area: 28SF Exposure B Roof Pitch 8°-45°																					
	Ground Snow (PSF): 0			10			20			30			40			50			Edge Mod			
	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	
	Wind Speed																					
90	106	90	82	97	90	82	83	83	82	72	72	72	64	64	64	58	58	58	85	72	66	
95	100	85	77	96	85	77	82	82	77	72	72	72	64	64	64	58	58	58	80	68	62	
100	95	80	73	94	80	73	81	80	73	72	72	72	64	64	64	58	58	58	76	65	59	
105	90	76	69	90	76	69	80	76	69	72	72	69	64	64	64	58	58	58	72	61	56	
110	85	73	66	85	73	66	79	73	66	71	71	66	64	64	64	58	58	58	69	59	53	
115	81	69	63	81	69	63	78	69	63	70	69	63	64	64	63	58	58	58	65	56	51	
120	78	66	60	78	66	60	77	66	60	70	66	60	64	64	60	58	58	58	62	53	49	
125	74	63	58	74	63	58	74	63	58	69	63	58	63	63	58	58	58	58	60	51	47	
130	71	61	55	71	61	55	71	61	55	68	61	55	63	61	55	58	58	55	57	49	45	
135	68	58	53	68	58	53	68	58	53	67	58	53	62	58	53	58	58	53	55	47	43	
140	66	56	51	66	56	51	66	56	51	66	56	51	61	56	51	57	56	51	53	46	42	
145	63	54	49	63	54	49	63	54	49	63	54	49	61	54	49	57	54	49	51	44	40	
150	61	52	48	61	52	48	61	52	48	61	52	48	60	52	48	56	52	48	50	42	39	
155	59	51	46	59	51	46	59	51	46	59	51	46	59	51	46	56	51	46	48	41	38	
160	57	49	45	57	49	45	57	49	45	57	49	45	57	49	45	55	49	45	46	40	36	
165	55	47	43	55	47	43	55	47	43	55	47	43	55	47	43	55	47	43	45	39	35	
170	54	46	42	54	46	42	54	46	42	54	46	42	54	46	42	54	46	42	44	37	34	

15/8" Strut Channel	Roof Type(s) Flush Mount System Span Table (Inches) Max module length 88", Max module Area: 28SF Exposure C Roof Pitch 8°-45°																					
	Ground Snow (PSF): 0			10			20			30			40			50			Edge Mod			
	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	
	Wind Speed																					
90	87	74	68	80	74	68	79	74	68	71	71	68	63	63	63	57	57	57	70	60	55	
95	82	70	64	75	70	64	78	70	64	70	70	64	63	63	63	57	57	57	66	57	52	
100	78	66	60	71	66	60	77	66	60	69	66	60	63	63	60	57	57	57	63	54	49	
105	74	63	57	67	63	57	74	63	57	68	63	57	63	63	57	57	57	57	60	51	47	
110	70	60	55	64	60	55	70	60	55	67	60	55	62	60	55	57	57	55	57	49	44	
115	67	57	52	61	57	52	67	57	52	66	57	52	61	57	52	57	57	52	54	46	42	
120	64	55	50	59	55	50	64	55	50	64	55	50	61	55	50	57	55	50	52	44	41	
125	61	52	48	56	52	48	61	52	48	61	52	48	60	52	48	56	52	48	50	43	39	
130	59	50	46	54	50	46	59	50	46	59	50	46	59	50	46	55	50	46	48	41	37	
135	57	48	44	52	48	44	57	48	44	57	48	44	57	48	44	55	48	44	46	39	36	
140	54	47	43	50	47	43	54	47	43	54	47	43	54	47	43	54	47	43	44	38	35	
145	53	45	41	48	45	41	53	45	41	53	45	41	53	45	41	53	45	41	43	37	33	
150	51	43	40	47	43	40	51	43	40	51	43	40	51	43	40	51	43	40	41	35	32	
155	49	42	38	45	42	38	49	42	38	49	42	38	49	42	38	49	42	38	40	34	31	
160	47	41	37	44	41	37	47	41	37	47	41	37	47	41	37	47	41	37	39	33	30	
165	46	39	36	42	39	36	46	39	36	46	39	36	46	39	36	46	39	36	37	32	29	
170	45	38	35	41	38	35	45	38	35	45	38	35	45	38	35	45	38	35	36	31	28	

	Edge Mod		
Group 3	Group 1	Group 2	Group 3
57	57	55	50
57	57	52	47
55	57	49	45
53	55	47	43
50	52	45	41
48	50	43	39
46	47	41	37
44	46	39	36
42	44	38	34
41	42	36	33
39	41	35	32
38	39	34	31
36	38	32	30
35	37	31	29
34	35	30	28
33	34	29	27
32	33	29	26